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Worldwide Report

ENVIRONMENTAL QUALITY

No. 346



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POLLUTION GROWING PROBLEM FOR SOUTH PACIFIC ISLANDS

Auckland THE NEW ZEALAND HERALD in English 19 Feb 82 p 6

[Article by Roy Vaughn]

[Text]

Pollution in nearly all its forms is rapidly eroding the idyllic tropical qualities of the South Pacific, and the South Pacific Commission is seriously concerned about it.

Next month the commission, in conjunction with the South Pacific Bureau for Economic Commission, will hold at Rarotonga the first major regional conference on pollution.

Dream-like coral atolls and luxuriant volcanic islands are becoming cluttered with some of the worst vestiges of Western civilisation. Used cans and car bodies clutter up villages, and population pressure and poor land management have led to erosion and lagoon pollution, according to the commission.

Nuclear testing and waste dumping has become the most widespread concern among the nations, and the most emotive issue, although the great majority of the Island states are not as immediately affected by them as the more mundane but equally pressing problems of normal city and suburban pollution.

Disposal Big Problem

In pre-European times a traditionally ingrained feeling for surroundings and the use of mostly biodegradable materials for everyday life generally protected the environment.

Now waste disposal has become the region's most pressing problem, in some cases threatening not only food sources but also the health of Islanders.

The commission says more than 60 per cent of all the South Pacific nations have problems trying to dispose of solid wastes, particularly cars, appliances, cans and bottles.

Reefs and lagoons have silted up under the washed out soils and eroded farm land.

Population pressures have created habitat problems in more than half the Island nations, the commission says. The problems are generally to do with water supply, sanitation and substandard housing.

Land Tenure Tradition

Half the countries have major agricultural problems resulting from poor management, wrong use or the introduction of animals or crops which are damaging.

In many cases traditional land usage and tenure systems cannot cope with growing population pressure and in others the introduction of European-

style land tenure has also proved unsuitable.

Some rethinking of land management and ownership is necessary in many places, according to the commission.

Only about 4.7 million people live in the region which represents 6 per cent of the earth's surface and, while the seas are not under pressure, much of the land is.

Unsuitable Cash Crops

The people live on only 600,000 square kilometres of land and many of the islands were taxed well beyond self-sufficiency years ago, causing heavy dependency on imported non-biodegradable items, agricultural chemicals and the introduction, in certain instances, of unsuitable cash cropping to pay for the imports.

The commission is calling for much closer cooperation on matters like soil technology, and fisheries development where an exchange of knowledge and expertise can prevent further damage.

Careful attention has to be paid to marine pollution around the coastal fringes of the Islands, as the commission says at least three-quarters of the nations have these problems.

Clean rural water is one of the most pressing needs. Most people living in the area rely on wells, springs, streams or rivers for their supplies.

Clearance Of Forests

The progressive clearance of bush and tropical forest has caused serious problems in many instances, because the rain run-off is too fast. Little is trapped, sponge-like, by the trees for use during dry periods.

Most South Pacific nations are confronted with a massive education programme on pollution at a basic village level because the problems are caused by many foreign imported items alien to traditional cultures.

A draft action plan for the development and protection of the South Pacific environment has been drawn up. It has four main chapters:

- Environmental assessment.
- Environmental management.
- The legal aspect of pollution controls.
- Institutional and financial arrangements.

Some 22 Island states are members of the commission and the implementation of an action plan to tackle the problems largely depends on what sort of commitment member governments make.

South Pacific nations have a history of working well together on a variety

of schemes and funding is likely to come from outside agencies like the United Nations as well as from within the region.

Development Of Tourism

There is much in favour of the Island nations making an early start because of the need to develop alternative energy sources from hydro power and through energy farming based on exotic tree crops, cassava or sugar cane, and also because of the development of tourism.

Tourism itself can create pollution if not carefully planned but tourists will not visit polluted Islands and the South Pacific has the reputation of being one of the largest as yet unspoilt regions of the world.

While many Islands do not want or need tourists, the industry is fast growing and a vital livelihood for many.

Environmental Balance

The commission says the greatest environmental problem facing the states in the future will be to balance the different economic and social requirements.

More than 60 per cent of the Islands are concerned that they are already approaching the ultimate of their population and productive carrying capacity.

MINISTER DESCRIBES SOIL EROSION AS TOP ENVIRONMENTAL ISSUE

Brisbane THE COURIER-MAIL in English 2 Feb 82 p 12

[Text]

LAND degradation was Australia's most serious environmental problem, the Primary Industries Minister, Mr Ahern, said yesterday.

Mr Ahern said some emotive environmental issues attracted great publicity, with people marching and waving banners.

But there was a need for many people to get their priorities right and deal with the most important environmental issue: soil erosion.

"More and more land is being forced out of production because it has not been protected by soil conservation measures or because it should never have been farmed," Mr Ahern said.

He said silt problems were costly to both the farmer and the community.

Everybody paid to have soil removed from rivers, reservoirs, dams, roads and railway lines.

Everybody paid if food prices were forced up because of a lower crop yield on degraded land, Mr Ahern said.

Mr Ahern spoke at the official opening of the annual conference of the Australian Association of Agricultural Faculties at Queensland University.

He said half of Australia's land had been degraded to varying degrees.

In the arid zone alone, 55 per cent of land was degraded. That

was an area 27 times the size of Tasmania.

The main degradation was of native vegetation.

In non-arid areas, about a third of grazing land and two-thirds of both extensive and intensive cropping land needed some form of soil conservation work.

Mr Ahern said that, in Queensland, about 42 per cent of the 1,620,000 sq km used for agriculture needed soil-conservation measures.

Most of this degradation had been caused by water erosion.

"From time to time Queensland is accused on a national level of doing the least about it," Mr Ahern said.

"That is not true. The problem has a high priority for us."

Mr Ahern said his department's soil conservation branch had field staff in 29 country centres to provide a farm planning advisory service.

But land was being developed faster than soil conservation staff could plan and work out soil-conservation measures.

SCIENTIST CHARGES SEVERE EFFLUENT POLLUTION OF RIVER

Melbourne THE AGE in English 6 Feb 82 p 17

[Article by Rosslyn Beeby]

[Text]

Sewage effluent has severely polluted the Wimmera River, an environmental scientist has told the Environment Protection Appeals Board.

Dr Terry Bellair, a water quality control specialist, told the board last week that effluent discharged by the Horsham Sewage Authority into McKenzie Creek, a Wimmera River tributary, was causing extensive weed growth, high water temperatures, discoloration and offensive odors.

"The HSA effluent is pushing the river over the brink into a polluted state," he said.

Dr Bellair was testifying before the board on behalf of Dimboola council.

Dimboola council protested to the EPA Appeals Board last year after residents claimed that the HSA effluent had made the river unsuitable for swimming and other recreation.

One Horsham farmer, testifying before the board last week, said his stock would not drink river water because it was murky and foul-smelling. Even his cattle dogs would not swim in the river, he said.

People at nearby Jeparit, birthplace of Sir Robert Menzies, have launched an appeal for money to build a swimming pool to replace the Wimmera River swimming hole. They claim the water is a health hazard.

Dimboola council and local residents also say that cane grass, a bamboo-like swamp reed, is choking the river bed, diverting

the river flow and causing severe erosion of the banks.

In one section, below Dimboola weir, cane grass, growing in dense clumps to three metres high, covers the width of the river bed and stretches for more than 300 metres downstream.

The council claims tests by water quality experts prove phosphorus, nitrogen and other nutrients from the effluent are responsible for the increased growth of cane grass and other river weeds in the two years since the preliminary EPA licence was issued to the Horsham Sewage Authority.

Mr Douglas Maroney, solicitor for Dimboola council, said 30 witnesses would be called to present evidence of the river's pollution. Witnesses would include farmers and local townspeople, as well as several environmental and agricultural experts.

Horsham Sewage Authority also has lodged an appeal with the EPA Appeals Board, protesting that the licence conditions are too stringent.

The HSA's main objection to the licence conditions is that effluent cannot be discharged into McKenzie Creek during summer when there is low river flow.

Dimboola council claims low flow conditions make both the McKenzie Creek and the Wimmera River unsuitable for effluent disposal.

Dr Bellair told the appeals board that the river's low summer flow was a critical factor in the argument against effluent disposal.

During summer, the Wimmera

River, which flows inland to Lake Hindmarsh and ends in the Little Desert National Park, dries into a series of water holes which are normally used for water sports.

Dr Bellair said that low or zero flow in warm weather meant that effluent lingered in the water holes, causing severe oxygen pollution.

Extensive weed growth on the river's surface, discoloration and high water temperatures in pools along the Wimmera River were all signs of severe oxygen pollution, he said.

Dr Bellair also challenged recent EPA tests conducted to determine the rate of oxygen consumption by the effluent. He said the five-day tests were suited only to English conditions where rainfall was high, temperatures low and rivers ran swiftly to the sea.

In evidence, which the board heard last week, several farmers with riverbank properties claimed the quality of river water had deteriorated rapidly in the past two years.

A public servant from Noble Park, Mr Lyndon Fraser, said that on frequent trips to his parents' home in Dimboola, he had seen the Wimmera River "change for the worse".

Mr Fraser submitted a scrapbook of photographs taken over a 10-year period as evidence that the river's aesthetic appeal had deteriorated.

"You wouldn't want to let kids swim in it now," he said.

The hearing will resume in Melbourne on Tuesday, when scientific experts for Dimboola and Horsham will testify.

STUDY SHOWS FRANKLIN DAM UNNECESSARY; COST BENEFIT SMALL

Melbourne THE AGE in English 6 Feb 82 p 3

[Article by Peter Ellingsen]

[Text] Tasmania does not need to dam the Franklin River for more hydro-electric power, according to research by two Canberra academics.

In a paper presented to the Senate inquiry into southwestern Tasmania, Dr Hugh Saddler and Dr Bill Donnelly say the State has enough generating capacity to last until the year 2000.

They say that any unforeseen shortfall could be covered with a small thermal power station using black coal from the northeast of the State.

Dr Saddler and Dr Donnelly are research fellows with the Australian National University's Centre for Resource and Environmental Studies.

Their evidence is the first to shake the energy-demand predictions made by Tasmania's Hydro-Electric Commission.

The State Labor Government, led by Mr Holgate, has decided to flood the lower reaches of the Franklin, the island's last wild river, largely on HEC advice.

Dr Saddler, 38, said yesterday that the research had analysed three factors: future retail electricity sales, the cost of heating oil, and average weekly earnings, all corrected for inflation. "We did not take into account any future conservation programmes or alternative sources of energy," he said.

"If these factors were included, the need for more hydro-electricity development in Tasmania would be even more remote."

The research found that the State's demand for electricity by the turn of the century would be 260 megawatts less than the figure which the HEC has predicted. The output of the Gordon-below-Franklin scheme estimated to cost several million dollars, was put at about 171 megawatts, Dr Saddler said.

He said Tasmania already had the large Pieman hydro scheme due to come on line in 1986, and would probably need no more generating capacity for the next 20 years.

During the Senate committee hearing earlier this week, the leader of the Australian Democrats, Senator Don Chipp, asked that copies of the research be sent to the Tasmanian Premier's office, the HEC and the State Directorate of Energy.

Dr Saddler, who has written a book on energy use in Australia, said the HEC's figures were based on generalisations about past growth. "Nothing is really quantified--it is basically an informed judgment," he said.

Dr Saddler and Dr Donnelly have calculated that it would cost Tasmanians \$750,000 a year to forgo a dam on the Franklin and preserve the wilderness area. "Considering that a wilderness shop in Hobart has sales of around \$500,000 a year, this might not be a huge amount," Dr Saddler said.

The Federal Government has nominated part of the southwest for inclusion in the World Heritage List, to be compiled in October.

Although senior Federal Ministers are unhappy about the dam move, the Senate select committee cannot reverse the decision.

According to Ms Karen Alexander, co-ordinator of the Victorian branch of the Tasmanian Wilderness Society, the proposed hydro scheme on the Franklin is a "national disaster."

"What would Australians think if India flooded the Taj Mahal for a few megawatts of power or the British in their dire straits decided to sell Westminster Abbey stone by stone?" she said.

"The Prime Minister, Mr Fraser, should accept responsibility for southwest Tasmania and deny funds to the State Government for what is an international act of vandalism."

A \$300,000 referendum last year returned a 47 percent vote for the Franklin scheme. Almost 45 percent of the vote was informal, with most of those marked "no dams."

Barring a change of heart by the Tasmanian Government or effective Federal intervention, the only way the dam will not go ahead is if an economic assessment commissioned by Mr Holgate is unfavorable. The State Labor caucus voted 15-5 in favor of the dam, but some key Ministers including the Deputy Premier, Mr Barnard, are among the opponents.

CSO: 5000/7521

BRIEFS

POLLUTION RELAXATION--The Victorian Cabinet yesterday approved relaxation of pollution restrictions on two of the State's oldest power stations to meet a New South Wales demand for urgent electricity supplies. The Minister for Mineral and Energy Mr Crozier said the variation in Environment Protection Authority conditions would be only slight, and would not effect emissions from Hazelwood or the Spencer Street plant which is to be reactivated. Mr Crozier said the NSW Electricity Commission had agreed to meet the total cost of manning and running the old oil-fired plant at Spencer Street. Lifting the EPA restrictions means NSW will get an extra 2.5 to three gigawatt hours a day--double its present SEC supply. Mr Crozier said the reopening of Spencer Street would not vary EPA levels, but there would be a small increase in stack emissions from Hazelwood. Total emissions from the plant--3168 grams an hour--would remain the same, he said. Mr Crozier declined to give details yesterday of the amount paid by NSW for the SEC power, saying it was an "accepted convention honored by both electricity commissions that cash sales are confidential." He said there was no suggestion that Victorian consumers were supplying "cheap credit" to help NSW or any other State. [Text] [Melbourne THE AGE in English 3 Feb 82 p 3]

SENATE WILDERNESS STUDY--The debate over the future of Tasmania's wild rivers enters a new arena today with the first public hearings of the Senate Inquiry into South-West Tasmania. Under its terms of reference, the inquiry will decide whether the Federal Government has a responsibility to help preserve wilderness areas of national and international importance within Tasmania. More than 650 written submissions have been received from all States and Territories. A similarly high interest is expected at the open hearings in Tasmania and the mainland. No official breakdown has been made but the committee's secretary said the submissions were "running towards the anti-dam sentiments." The original deadline for the inquiry's report was the first sitting day of 1982. It is now not expected before May. Witnesses called for today's hearings include representatives of the Tasmanian Wilderness Society and the State's Council of Churches. [Text] [Canberra THE AUSTRALIAN in English 4 Feb 82 p 2]

'BRAIN DAMAGE' IN VIETNAM VETS--A Melbourne research team believes it has identified a pattern of brain damage common to Vietnam veterans who were exposed to herbicides. The head of the team, Dr (Malcolm Barr), said the veterans have a pattern of brain damage similar to that caused by multiple sclerosis and mercuric poisoning. Dr (Barr) says the abnormal brain pattern was found in half of 150 veterans with psychological disorders who were tested. He has submitted his findings to a senate committee investigating the effects of herbicide used in Vietnam. [Text] [BK290941 Melbourne Overseas Service in English 0830 GMT 29 Mar 82]

SALINE RIVER WATER ENDANGERS NEWSPRINT FACTORY

Dacca THE BANGLADESH TIMES in English 6 Mar 82 p 1

[Article by Shahabuddin Ahmed]

[Text] Khulna, March 5--There has been an unprecedented rise in salinity content in the water of the Bhairab river which is in turn posing a serious threat to the industries requiring fresh water for production purposes.

The country's only newsprint mill at Khulna has already been hit due to salinity menace.

A PDB source said the 60 megawatt power plant of Khulna Power Station will meet the same menacing problem of salinity when it is recommissioned some time this month on completion of its overhauling works.

Menace, needless to say, is mainly due to the meagre water supply in the Ganges and its tributaries on account of the Indian diversion of the flow of the international river through the Farakka Barage.

The rise in salinity in the case of Bhairab river during this period is according to the Newsprint Mills sources, "much higher" than that recorded in the previous years in the corresponding time.

Bhairab river water has become totally unuseable in the boiler of the newsprint mill as the salinity content has already crossed the permissible limits according to the mill sources.

The mill needs about 300 tons of fresh water per day only for use as "boiler makeup water" to generate steam and power.

To meet the critical situation the newsprint mill, run by its own power plant, has been compelled to fetch sweet water for its boiler from 25 miles upstream by means of barges for a couple of days. Despite the import of sweet water for boiler from far off rivers, the mill in its running condition cannot totally dispense with the use of injurious saline river water for cooling its condensers and other parts, as the total quantity of water required for such cooling purposes is too huge to permit import economically.

The avoidable continued use of injurious saline river water led to the frequent leakages of condenser tubes due to its corrosive effects which finally hamper production.

Meanwhile, the carriage of sweet water by barages from the upstreams has become difficult as navigation on river routes has already become hazardous due to the formation of shoals and fall in water level caused by the reduced flow of the Ganges.

CSO: 5000/7045

ISLAND NATIONS SCHEDULE ENVIRONMENTAL CONFERENCE

Kuala Lumpur BUSINESS TIMES in English 3 Mar 82 p 21

[Article by John Laird]

[Text]

ISLANDS of the South Pacific — which have long enjoyed the image of an unspoiled tropical paradise — are now facing increasingly widespread environmental problems arising from new values of economic development.

While experts say that the problems are still in their early stages, they warn that ecological systems of thousands of small islands are much more susceptible to disaster than larger land masses.

They say that the problems — ranging from the destruction of fragile coral-reef coastlines to contamination of vital water supplies — may soon limit some islands' capacities to support their populations, and are a danger to health.

In an attempt to thwart this trend, two United Nations bodies and two Pacific regional organizations will convene a meeting of 22 island nations and trust territories in Rarotonga, Cook Islands, on March 8-11 to adopt what they hope will be a historical South Pacific declaration on natural resources and the environment, and to set up a joint action programme.

"There is a traditional feeling for wise environmental management among most Pacific peoples. Because islands are small-scale fragile ecosystems, many village customs and unwritten rules of behaviour have been based on in-built concern for environ-

mental protection," says a report to the conference by the South Pacific Regional Environment Programme (SPREP), based in Fiji.

"But in an attempt to develop new communities and through contact with new technology introduced from outside, traditional concepts are being forgotten," adds Mr Donatus de Silva, an official of the United Nations Environment Programme (Unep) in Bangkok.

"Islanders now realise that some of these development activities are beginning to have a negative impact," he said.

Environmental officer Viswanath Sarma, attached to the UN Economic and Social Commission for Asia and the Pacific (Escap) in Bangkok gave an example from Fiji:

"The government of Fiji is concerned that sediment effluence from gold mining is flowing into the coral environment. It is now thinking of taking measures to prevent the uncontrolled flow of effluent to coastal waters," he said.

Mr Sarma said that coral reefs form the basic geology of most of the region's islands.

"The reefs nurture marine life that is a major resource of the islanders, but are easily destroyed if their delicate balance is upset," he added.

"Even such seemingly-innocent practices as tourists swimming in lagoon waters can upset this balance," he said.

"Washings from the human skin, rich in nutrients such as nitrogen and phosphorus, even in very minute quantities, are sufficient to cause a blooming of undesirable plankton organisms which can cause turbidity," said Mr Sarma.

"They stop sunlight from reaching the algae in the coral and production of oxygen ceases. Once coral organisms die, all associated organisms migrate away leaving behind a coral graveyard," he said.

Unep's Mr de Silva listed some specific country concerns:

— New Caledonia has reported irreversible pollution of shorelines and seabeds caused by mining, which has also denuded 3,000 hectares;

— Rarotonga reports coral reefs in an advanced stage of degradation from silting, soil erosion and dynamite fishing;

— Almost all of Fiji's accessible forests have been harvested;

— Wholesale mining of phosphate on Nauru has reduced the island's size while its population continues to expand;

— Sand extraction for construction is a problem in Tonga.

In addition, island governments have voiced fears about possible nuclear pollution from French nuclear testing in the Pacific, and proposals to dump nuclear wastes there.

The Rarotonga conference will assemble

ministers or senior officials from developing island nations straddling some 30 million sq. km of ocean which contain 4.5 million people.

It is sponsored by Unep, Escap, the South Pacific Bureau for Economic Cooperation (Spec) in Suva, Fiji, and the South Pacific Commission (SPC) in Noumea, New Caledonia, as the result of a decade of consultations and groundwork.

Sprep's proposed 12-point environment declaration advocates management of resources based on training and information programmes aimed at safeguarding them for present and future generations.

The plan of action aims to improve legislation on the environment, to attract support from outside the region to boost capabilities of the region's tiny nations, and to establish action priorities.

More than 60 per cent of participating countries are worried that they are approaching their carrying capacity, says Sprep. It says that there is a high degree of policy commitment to environmental protection, but there are concerns about how such policies can be implemented.

The coastal zone will need to be a particular focus of attention, with new legal controls and coordinated government action to plan and manage this vital sector, adds Sprep. — AP

BRIEFS

SALINITY CAUSES FACTORY SHUTDOWNS--Cochin, March 11--The salinity problem in the Periyar river has resulted in production stoppages in a few more factories in the Eloor-Kalamassery industrial belt near here. The Indian Rare Earths and the Cominco Binani Zinc Limited have shut down their plants. The workers are now engaged in annual repair and maintenance work. In the Hindustan Insecticides Limited the formulation plants are working, but not the DDT plant. The Travancore Cochin Chemicals, another major unit, hopes to pull on for a couple of days more. But a shut-down might become necessary by next week at least of the old plants because users of Hydrogen Chloride (FACT) and Chlorine (HIL) have themselves stopped production and facility for storing these materials are limited. At the Premier Tyres in Kalamassery production has been affected and things are being "managed somehow," with water available from a well in the factory compound. The Fertilisers and Chemicals Travancore Limited (FACT) which shut down its plants on Tuesday is busy finding out alternate sources of water to start at least a couple of them. The early ending of the monsoon and absence of the usual rains after Sivarathri has brought down the flow in the Periyar to such an extent that saline water intrusion is worsening day by day. It is stated that the water storage in the dams is also limited and there is no possibility of letting extra water into the river. [Text] [Madras THE HINDU in English 12 Mar 82 p 9]

CSO: 5000/7044

HIGH COST REDUCES POLLUTION CONTROLS FOR POWERPLANT

Wellington THE EVENING POST in English 19 Feb 82 p 3

[Excerpts]

Millions of dollars have been shaved off the cost of refurbishing the Meremere power station by reducing the level of planned pollution controls.

Electronic pollution control equipment now proposed for the ageing coal-fired station will result in Meremere's smokestacks throwing out about twice the level of grit and dust expected from the nearby Huntly station.

While this will be a vast reduction on Meremere's present pollution level — 10 times the standard set for Huntly — it is a compromise on the sophisticated but more expensive equipment proposed last year.

The compromise follows negotiations between the Health Department and the Ministry of Energy's electricity division, which is planning to refurbish the 24-year-old Meremere to keep it running until the mid 1990s.

The general manager of the electricity division, Mr Kevin McCool, described the new proposals as a "mutually satisfactory" arrangement

between his division and the Health Department, which administers the Clean Air Act.

Mr McCool said the compromise level of residual pollution had been set at 250 milligrams of dust per cubic metre of flue emission. This compares with Meremere's existing pollution level of 1200 milligrams a cubic metre and the 125 milligram level expected from Huntly.

The proposed pollution controls are electrostatic precipitators. They put high-voltage charges into the boil-

er flue gases, trapping the particles and mechanically stripping them from the air-stream.

The electricity division's principal design engineer for thermal stations, Mr John Malcolmson, said the precipitators would significantly reduce Meremere's smoke haze, although some plume from the chimneys would still be visible.

Mr Malcolmson said the equipment would be similar to that at the Huntly station but on a smaller scale and not as sophisticated.

BRIEFS

ISLAND AGAINST PROSPECTING--In an attempt to fight off Australian gold-hunters, Great Barrier Island has declared itself a non-mining zone. Newmont Pty Ltd, which wants to prospect on the Coromandel Peninsula, has also applied for a licence to search 4000 hectares of the centre of Great Barrier Island. The island county council first learnt of Australian interest when a public notice--"eight inches square," according to the county planning committee chairman, Mr John Graham--was seen on a telephone pole beside the road. Since then councillors have responded to a letter from the company by declaring themselves "totally opposed" to mining anywhere on the island and unhappy even at the idea of having mining companies finding out what minerals the island has. The area Newmont wants to look at, said Mr Graham yesterday, covered the central forest on the slopes of Mt Hobson and ran eastward to Okiwi. South of this area lies land from which gold and silver used to be mined. In Wellington yesterday the district manager of Newmont, Mr M.A. Ward, said the company wanted only a limited-impact prospecting licence and he expected the Energy Ministry would seek various other bodies' opinions before writing a set of conditions for prospecting. The island council would be asked for its opinion on the conditions and the whole proposal would go to a planning tribunal to which the council could make submissions. [Text] [Auckland THE NEW ZEALAND HERALD in English 25 Feb 82 p 1]

NATIONAL PARK PROSPECTING--Auckland, March 7 (PA)--A mining company will begin prospecting for a rare mineral in Fiordland National Park this week under the watchful eyes of environmentalists. The Auckland company, Consolidated Minerals Ltd, will search for rutile--a mineral used in the manufacture of paint--at Transit Beach near Milford. There was an outcry from environmentalists when the prospecting licence was granted last year. The company appears to have forestalled further protest by inviting the Environmental Defence Society to observe and advise on the prospecting. The society's executive officer, Mr Gary Taylor and a botanist with the Native Forests Action Council, Dr Peter Grant, will visit Transit Beach this week. Transit Beach was one of the few areas in New Zealand where primeval native vegetation was largely untouched by browsing animals, Mr Taylor said. The company geologists will take samples of earth to test for rutile content. If a commercial quantity is found, the company is likely to apply for a mining licence. Environmental groups are almost certain to oppose any mining in the park. [Text] [Wellington THE EVENING POST in English 8 Mar 82 p 9]

MARINE RESERVES POLL--The Ministry of Agriculture and Fisheries is considering suggestions from the public for the location of marine reserves. Changes to the Marine Reserves Act are also in the pipeline. A marine reserve is an area which contains underwater scenery, natural features or marine life of a quality distinctive enough to be preserved in the national interest. Last year the ministry asked the public for suggestions for the location of marine reserves. "Regional officers received about 92 suggestions ranging from very good to very strange ideas and we are putting them into some sort of order to facilitate decision-making," said Mr Bruce Shallard, a senior executive officer. Mana Island and the Pauatahanui Inlet were the only areas proposed near Wellington. Of the act, he said the ministry wanted its scope broadened because it was directed towards scientific reserves and "we want to see areas of recreational and historic interest included." The new fisheries bill is being drafted for presentation to Parliament in 1983. [Text] [Wellington THE EVENING POST in English 22 Feb 82 p 20]

CSO: 5000/9066

MANGANESE, LEAD POISONING SAID TO BE SEVERE NEAR BANGKOK

Bangkok MATICHON in Thai 26 Dec 81 p 7

[Article by Amnat Nutpraphai, a member of the National Labor Development Advisory Council: "Poisonous Substances In the Samut Prakan Area"]

[Text] There are two types of creatures in the world: precious beings and beasts. In the present situation, the laborers, or in scholarly terms, the manual laborers, in the Samut Prakan and Phrapradaeng areas are no different than beasts in the way they exist in the factories, in their work, in the food they eat and in the places they live.

The industrial laborers in these places are like rats on board a ship that are being given experimental drugs. The government is incapable of taking any serious action to solve the problems concerning the poisonous substances. The different environments have caused the workers to receive much more manganese and lead than the human body can tolerate. These substances are therefore poisons. These substances lead to brain damage and stomach disorders. Rest periods are insufficient and they do not have a chance to treat themselves or have physical examinations since their lives are bound by their jobs because of the fact that they are regular employees who are given 30 days of sick leave a year with wages and a hospital treatment allowance.

Foreign experts and foreign labor research institutes from countries that have invested large sums in industries in Thailand and that have had a favorable balance of trade with Thailand, one that reaches 70 percent a year, have disclosed this health and sanitation problem of the people and workers living near the industrial factories in the Samut Prakan and Phrapradaeng areas and at the mouth of the Samut Prakan Bay. This has resulted because there are approximately 80,000 industrial factories in Thailand.

Research was conducted in more than 3,000 factories in the Samut Prakan area and with approximately 200,000 workers whose health could be affected by the poisonous substances and the different environments.

Worker injury and sickness result from the fact that there are poisonous substances in the factories and accidents happen daily when they come to work in these factories. Such things occur because of insufficient knowledge

about how to protect themselves from these dangers, even though most workers go to work in order to make a living. Having enough to live on each day, they do not think about the fact that if they continue working, an accident may happen and that their lives are in danger at every moment. The government cannot look after the industrial factories nor can the Ministry of Public Health and the scientific research institutes follow things and take serious action. Long before the workers, or youths, in the Samut Prakan area become paralyzed or physically disabled when they reach the age of 60, the youths in factory areas will have become mentally retarded even before they enter school.

Poisonous substances pose a danger that has arisen in the steel and metal plants, in the battery factories and in the lead smelting plants. The level of lead in the blood of these workers is much higher than the standard. This is poisoning them. At the steel plants, the level of manganese in the bodies of the workers is so great that the workers are suffering mental disorders. They do not have a chance to get treatment since the economic situation binds them in family life. These people are daily workers. If they miss a day's work, a day's pay is deducted. Really, they do not have any sick leave even though they are entitled to 30 days sick leave a year. There are thousands of factories that government officials cannot monitor and the employees here do not have any rights at all and are given no protection by the laws. They are entitled to 3-4 days leave at Chinese New Year's.

At the textile factories, besides the [unwholesome] conditions resulting from excessive amounts of dust, some of these factories do not have restrooms or they do not meet the standards. They are pits in which various diseases breed. The meal and rest periods set by the employers are too short and this causes the workers to experience stomach disorders and leads to mental health problems.

To solve the problems, the only thing the government or government officials do is to raise the issues and talk about this but nothing is done. It is the same in all circles, even in agriculture. No serious action is taken. The owners of the factories and the workers should be given information and educated.

The government prefers to solve problems after the fact. This is different from in those countries that started developing after Thailand but that have passed us in development. That is, the national leaders have made sacrifices and worked hard to preserve the nation's resources. [Here], to hold a conference or carry on a piece of research, we constantly rely on those countries that have a trade advantage over us, that is, the great powers. At the conclusion of the conferences, the data or the results of the conference are sent to the country that provided financial aid. They know everything concerning what Thailand needs and what it lacks even though our country is rich in resources.

As for the industrial plants in these six provinces, the government should prohibit further construction or expansion in order to clean up the environment [by removing] the poisonous substances. It should also implement resolute measures in order to strictly control illegal factories. As for solving the problems directly, the laws should be revised so that the penalties are harsher.

11943

CSO: 5000/5680

SEAGA OUTLINES WATER IMPROVEMENT SCHEME FOR 1982-83

Kingston THE DAILY GLEANER in English 6 Mar 82 p 1

[Text] Expenditure has been programmed in the next financial year (1982/83), which commences next month, for the start of work on a \$26-million Government project to improve water supply schemes in 28 areas across the island, the Prime Minister, the Rt. Hon. Edward Seaga told the House of Representatives on Thursday.

Mr. Seaga also said that the long-term solution to the current water problems was the introduction of the Blue Mountain Water Supply Scheme as quickly as possible. The scheme will come on stream by 1988, with 10.5 million gallons per day, with the second phase providing an additional 23 million gallons per day in the early 1990s.

The Prime Minister told the House that some weeks ago the National Water Commission was asked by him to assess what finances would be required to bring all the defective water supply schemes into maximum operation.

"I have now received the report of the N.W.C., which indicates that the total requirement is \$26-million to improve schemes in the following 28 areas across the island so that the residents can be more fully provided with water," he said.

Mr. Seaga named the following areas:

Kingston: Rio Cobre/Tulloch Spring improvements; improvements works, Constant Spring filter plant.

St. Catherine: Spanish Town water supplies, including Old Harbour.

St. Thomas: Seaforth/Morant Bay, Yallahs.

Portland: Sherwood Forest; Hope Bay/St. Margaret's Bay; Charlestown/Buff Bay; Grants Level improvements.

St. Mary: Eastern St. Mary; Pottinger Springs; Annotto Bay/Lter Boreale.

St. Ann: Ocho Rios; Liberty at Coolshade Spring.

St. Elizabeth: Bogue/Elim; Balaclava; Mountainside.

Clarendon: Chapelton; Kemps Hill; Hayes, May Pen.

Manchester: South Manchester; Porus/ Mandeville.

Westmoreland: Bulstrode/Grange Hill.

St. James: Montego Bay/ Falmouth; Bethel Town; Anchovy/Montpelier; Canaan/ Charity.

Trelawny: Duncans/Clarks Town.

"I have programmed expenditure in the Estimates for the next financial year, which begins next month, to deal with a part of this problem, with the remainder to be dealt with in the next financial year as fully as project planning permit. Any unfinished work will be dealt with in the 1984/85 financial year," he said.

The programme will bring the systems involved up to their maximum operational levels, and improve the quality of life for a large number of the 600,000 consumers in the system.

On long-term solutions to the problem, Mr. Seaga said that the solution is to introduce the Blue Mountain Scheme as quickly as possible. It would come on stream with 10.5 million gallons per day by 1988, with the second phase providing an additional 23 million gallons per day in the early 1990s.

"The Government, as will be recalled, took the decision last year to proceed with the Blue Mountain Scheme at a cost of some \$413 million. Documents have now been prepared to contractors to sign," he said.

"I need hardly point to the fact that this project is very costly and special arrangements for financing are being investigated by Government."

However, even with this long-term measure, from the data on supply and demand there will be a critical period in the mid-1980s when the Blue Mountain Scheme will not yet be in operation.

Consequently, he had asked the National Water Commission to examine the possibilities of the Ferry and Duhaney Rivers, which flow at the edge of the city and which could give at least 20 million gallons per day, if the problem of some salinity caused by salt water intrusion can be solved. Experts are to arrive here shortly to examine these prospects.

On water problems in West Rural St. Andrew, Mr. Seaga said that he has been advised that adequate sources did not exist in the area and the only solution was to bring water from outside the area, the prospects of which are now under investigation.

He said that he proposed to curb new developments in the badly-affected areas until the situation is remedied--a decision which he said should have been taken years ago.

Commending the Jamaica Public Service Company employees for the signs of improvements since his address to the nation on the electricity problems, he continued:

"I wish I could say the same for the attitude of some workers in the parish water supply systems, who despite the dedication of the many people who are engaged in the national water supply system, have let down their team and their country by outright acts of sabotage.

"I have not hesitated to call on the Jamaica Defence Force in the past whenever workers in vital and essential services use disruptive action to deprive consumers, and I will continue to do so in the future.

"The way to deal with problems of industrial disputes is by the machinery set up by normal conciliation between management and workers, or normal strike action if that fails, and by the machinery set up by the Government to deal with disputes."

CSO: 5000/7520

BRIEFS

CABINDA POLLUTED AREA INSPECTED--Cabinda, 18 Mar (ANGOP)--A joint Angola-Congolese delegation led by Pedro Van-Dunem and Boniface Mabingou, Angolan minister of petroleum and Congolese minister of tourism and the environment respectively arrived yesterday morning in Cabinda Province in northern Angola to conclude the work done in connection with the pollution reported along the Congolese coast of Pointe-Noire during the Angolan minister's last visit to that country. In this connection, the two delegations visited the offshore installations of Cabinda Gulf Oil and the ELF-Congo sea coast from Djeno, Congo, to Pointe-Noire, where they were able to assess the effects of the pollution caused last year by the Sonor ship "Sedco 250" which was shipwrecked while operating offshore. At the end of the visit, the two parties held a working session to study adequate ways of correcting the problems and adopt other resolutions with a view to improving future work. [Text] [AB181738 Luanda ANGOP in French 1400 GMT 18 Mar 82]

CSO: 5000/5709

ETHIOPIA

BRIEFS

AFFORESTATION IN ARSSI REGION--Assela (ENA)--An afforestation task force of mass organizations was set up here Wednesday to promote work of tree plantation over denuded areas in Arssi region. Civil servants were also elected to work with the committee which was set up in accordance with the directives of the Forestry and Wildlife Conservation and Development Authority. The Arssi Regional Economic Development Campaign Council is to supervise the activities of the task force. Comrade Alemu Yimer, Acting Manager of the Arssi Rural Development Agency briefed the meeting on the former potential of the country in forestry and the present condition of the resource. Comrade Alemu made note of the need for active cooperation of the broad masses at large in the reafforestation programme. Briefings were also given by pertinent experts on the activities of the task force. Representatives of various ministries, the regional administration and mass organizations were elected as members of the task force. [Text] [Addis Ababa THE ETHIOPIAN HERALD in English 12 Mar 82 p 1]

CSO: 5000/5705

SIR EXPLANATION OF 'ACCIDENTAL' POLLUTION OF BIETRY REPORTED

Abidjan FRATERNITE-MATIN in French 3 Feb 82 pp 16,17

[Article by Sophie Chegaray: "Black Tide in Bietry Lagoon: SIR Explains"]

[Text] "FRATERNITE-MATIN sensationalizes every little thing"; "makes a big fuss about incidents...." Despite these accusations about us, SIR [Ivorian Refining Company] has been unable to give the lie to even the least of our news items about the black tide for which it is responsible, and which since the beginning of December has been covering the whole shoreline of Bietry Lagoon in a thick coating of fuel oil. Private residences, aquatic sport clubs, or fishing villages, the lagoon shoreline has become unusable, even dangerous, for all of them, since on 31 December a fire had to be put out along the shore, in the area of Palminindustrie, seriously threatening the village of Point des Fumeurs.

Where did this black tide come from? What anti-pollution installations does the Ivorian refinery have at its disposal for preventing polluting spills into the lagoon? Now that SIR is about to nearly double its production capacity, has it provided for more suitable, more effective installations? SIR management has consented to give a written reply to all these questions, of which we give substantial excerpts.

"Any refinery inevitably produces fuel-laden effluent." That is true, since in off-shore oil extraction there is always a layer of salt water floating over the oilfield surface, part of which is pumped out at the same time as the crude oil.

But in every refinery there are relatively sophisticated decanting facilities or separating tanks that make nearly perfect effluent filtering possible. Thus if refineries are properly equipped and careful, they can discharge effluent completely free of hydrocarbons.

In industrialized countries, these discharges are strictly monitored and must meet international standards that set the maximum percentages for substances in suspension, phenols and others, the acidity rate, and the temperature limits.

SIR, though, carefully avoids mentioning whether, with its facilities in their present state, its effluents are in conformity with these standards.

Theoretical Treatment of SIR Effluents

"Present treatment of oil-contaminated SIR effluents is as follows:

1: A storm-basin

The oil-laden water is collected in a large 700 cubic-meter basin in which adequate retention time allows initial separation of oil and water. Part of the oil that surfaces can then be recuperated and sent off to crude-oil storage tanks. From this basin, a screw-pump, or Archimedean pump, sends the bottom water to two separating tanks. The water still contains oil.

2: The first separating tank:

This is a tank that steadies the outflow of water, and is of dimensions calculated to allow little drops of oil to rise to the surface. The oil that is skimmed off is collected in a trough and shipped in crude-oil storage drums.

3: The second separating tank:

This is the final oil recuperating system. The smallest drops that escaped the first separating tank are caught here. The water flowing out of the previous tank is passed through coconut-fiber filters before being brought into a small inspection tank, which allows the quality of the water to be seen, sampled, and analyzed before it is released into Bietry lagoon. A system of this sort functions around the clock."

Let it be noted, however, that this description is still purely theoretical; if SIR kept to "adequate retention time," and did indeed "inspect, sample, and analyze," the quality of the water before releasing it into the lagoon, could a black tide such as this have existed and lasted in such large quantities for nearly a fortnight, and in smaller quantities for over a month?

The crude-oil leakages began around 2 December; SIR was informed of the pollution problem on 5 December by the Nauti-Sports Company, then by the Ministry of the Environment on 9 December. Yet on 14 December, the expert from Great Britain observed that the effluent flowing from the mouth of the SIR outlet was still black and oily, in short, as pollutant in nature as it could possibly be. At last, on 31 December, in the Ministry of the Interior conference room, the Civil Defense director complained to the general manager of SIR that waste waters from the refinery were still being released.

with a high content of oil.

Four Hundred Tons of Outflow 'Escape Attendants' Vigilance'

How then can credence be given to SIR's words when it writes:

"Action was taken as soon as the alert was given by Nauti-Sports Company: recirculation of the water through the system, that is, storm basin to the two separating tanks, inspection tank, and return to the storm basin via the skimming pump. At the same time, the recuperated oil was routed to the waste vat.

These arrangements were in effect until Friday 11 December. By that time, the situation was under control..." !!

If then, there are anti-pollution facilities at SIR, either they do not work at all, or they work poorly, which indicates serious negligence in the maintenance and monitoring of the equipment.

SIR admits, incidentally, the near-absence of monitoring of its waste water.

"The pumps used to take up the oil salvaged from the inspection tank have had repeated breakdowns. The maintenance service took action to repair them, but unfortunately the maintenance personnel on duty that day, which was Friday 4 December 1981, the day before the independence day week-end, omitted to perform the tests, and in particular, to inform the service responsible for operating the water treatment facilities.

During the same period, the crude-oil desalinator in the bitumen unit was running with its drainage valve stuck open, although in the control room the position indicator showed the closed position. Thus, a large amount of crude-oil poured into the collectors toward the basin without the knowledge of the unit operators.

The cumulative effect of the two incidents led to the overflow of the residual water treatment basin, with hydrocarbons spilling into the treated water evacuation channel. And this escaped the vigilance of the attendants on duty monitoring the area."

Let it just be noted that by 4 December the whole of Abidjan was already talking about the tide which "had escaped the vigilance" of SIR employees alone.

Future Facilities in Conformity With Regulations

"In about 2 months, SIR will put a new oil-contaminated water treatment system into service, and it will be much larger and more modern than the present one, which will then be destroyed. It will include:

1: The storm basin:

The former large collecting tank described above

2: A predecantation tank:

The water from the storm basin will be routed to a predecantation tank by pumps with a capacity of 2,500 cubic meters per hour, which can evacuate the basin in stormy weather. The tank has been designed to hold all the water from the biggest storm observed at the SIR site for the past 10 years, allowing for continual precipitation for 11 hours and a run-off coefficient of 0.9. Predecantation will make it possible to lower the hydrocarbon content from about 400 milligrams per liter to 100 milligrams per liter.

3: The API separator (American Petroleum Institute process)

It works on the same principle as the first separating tank, except that two identical 200 cubic meter tanks are built. They are provided with oil recuperation tubes.

4: The flocculator:

Here the water will be neutralized with acid or soda, and a polyelectrolyte will be injected to promote coagulation and flocculation of the small particles of oil in colloidal suspension.

5: The flotation tank:

It will permit collection at the free surface of oil in suspension that has come out of the flocculator. The flotage will be vaporized by the micro-bubbles of injected air.

6: The observation tanks:

When it leaves the flotation tank, the water will be completely cleared of oil. It will then be routed to two impressive observation tanks (3,000 cubic meters each)

The quality of the water will be inspected as it leaves the tanks. If it meets standards, it will be released into the lagoon. If it does not, it will be recycled and returned up-stream of the API separators."

One does not have to be an expert on the subject to realize that the new installations will be infinitely more sophisticated than those that now exist: machine separation, then chemical separation should indeed permit much more thorough purification of the water than the present marginal installations.

Both Judge and Defendant

But still, SIR's effluent will have to be properly monitored, as waste water from all plants should be. Until now, though, monitoring has been a matter for the Ministry of Mines, a production ministry for which being both judge and defendant is problematic.

It seems indispensable therefore that an independent organization be made responsible for the monitoring. Such an organization exists: it is Industrial Environment, whose resources in equipment and manpower are, alas, very limited. If Ivory Coast wants to pursue a coherent development policy, that is, one taking into account the environment as economic potential and a factor of progress, it is above all on the industrial environment that it must launch a vigorous plan of attack.

A Fact-Finding Mission

What has SIR done so far to prevent any accidental pollution by hydrocarbons?

The creation of an environment section was decided upon by the general management in 1974.

The extent of the problems became apparent in 1978, when SIR decided to increase its refining capacity, and double its offshore tanker-docking facilities off Port-Bouet.

The SIR environmental protection specialist's first fact-finding mission occurred in 1979. He met with many companies and many experts.

After this inquiry, which was conducted abroad, SIR arranged a meeting to make various public and private institutions aware of the problems of accidental pollution which could occur in Ivory Coast given its industrial development.

This meeting was held at SIR on 28 May 1980.

During the meeting, SIR specified that it was indispensable for the various official organizations to concert their efforts to implement an effective pollution-fighting system, and pointed out that in the event of accidental pollution, no Ivorian regulations specify whether intervention was the responsibility of the state or of private organizations.

It was agreed that in case of major accidental pollution, the Ministry of Maritime Affairs would be informed first so that it could take action, and for minor accidental pollution, the polluter would have to use its own means to intervene."

Thus SIR did in fact suspect that it would be faced with pollution problems

some day. But did it therefore take adequate measures for corrective action? Creating a special environment position and sending a mission to meet with experts in Europe without their leading to anything practical does not amount to a prevention policy, but at best the starting point for such a policy.

The truth is that people think accidents only happen to others.

As in La Fontaine's fable, "the grasshopper found itself quite unprepared when the north wind started to blow." And the icy blast in this case is the mini-tide for which SIR was certainly quite unprepared, with as sole means of intervention its 3,000 liters of dispersant, of which it used up one quarter trying an initial clean-up of the Nauti-Sports club.

When the Tempest Blows....

But what will happen when the big storm comes? Between the Ghanaian border and Grand-Lahou, drilling platforms are appearing in increasing numbers on the continental shelf, while from the Belier [Ram] field a pipe-line carries 1,100 tons of crude oil a day to SIR, and a lot is happening at the Espoir [Hope] oil-field too. For its part, SIR is preparing to accommodate 250,000-ton vessels; that figure on its own shows the extent of the risk involved in the event of an accident.

It has taken this mini black tide to provoke awareness of the total void (as concerns jurisdiction as well as means of corrective action) prevailing in Ivory Coast in the hydrocarbon pollution area.

Four hundred tons of hydrocarbons poured into the Biétry lagoon, causing damage estimated at 400 million CFA francs.

Is that not enough to marshal the country for an effective, immediately operational program? Let it not be overlooked that in France the "Torre Canyon" accident, during which 10,000 tons of oil poured out along the coast of Brittany, cost a mere 15 billion CFA francs.

It is high time that the Pollumar Plan, under preparation for several months, become operational and that all preventive and corrective measures be indeed taken so that the country is not at the mercy of a catastrophe; the development of oil activities renders this threat greater every day.

12149

CSO: 5000/5673

ACCIDENTAL NATURE OF BIETRY POLLUTION QUESTIONED

Abidjan FRATERNITE-MATIN in French 3 Feb 82 p 16

[Article by Sophe Chegaray: "Did You Say Accident?"]

[Text] Following our inquiry into the black tide in Bietry lagoon, we were contacted by the Gerenthon appraisal office, which was astounded that anyone dared talk of "accidental pollution." So far as this office is concerned, indeed, the black tide did not start on 1 or 2 December 1981, but has been constantly present since November 1980. It even reached such proportions that the office had to have a bailiff, Maitre Theodore Konan Yao, make an official report, on 8 January 1981, on the extreme state of pollution of the shores of Bietry lagoon on behalf of the Yacht Club.

"Being located on the shore of the lagoon," the Yacht Club manager explains, "we have been subject to extensive losses, and it has been going on for several months.

Indeed, it was in November 1980 that we first saw large crude-oil slicks appearing along our Marina.

At first we thought that the slicks were the consequence of an accident, and that they were therefore of a temporary nature.

It was not until January 1981 with the duration and increase of of the pollution that we had a bailiff's report made."

In Maitre Theodore Konan Yao's official report, then, we read:

"An irregularly-shaped stretch of shoreline about 400 meters long is saturated by a thick, black, oily layer similar to pitch or oil sludge, which is visibly polluting the water over a distance of about 100 meters.

The shoreline is soiled and blackened by this oily substance, there are piles of scrap-iron and rubbish of all sorts mixed with oily slurry along the shore, resulting from clean-up.

Of the 160 pleasure craft, 62 housed in the following covered berths have their trailer tires, gaskets, and flexible coupling over the crankshaft flange softened and split."

In response to questioning, the yacht-club manager stated:

"During boat-launching operations, contractual workers and I have to get into the lagoon, which comes up to our thighs, as a result of which we get dirty from the oil, which causes itching.

In spite of the assistance of other workers hired to clean the sea-bed, the substance reappears every morning."

After that, can any credence be given to the statement by SIR, which is trying to have it believed that there was a regrettable accident that escaped the vigilance of the men on duty?

12149

CSO: 5000/5673

OCEANOGRAPHIC RESEARCH CENTER'S FINDINGS ON SPILL

Abidjan FRATERNITE-MATIN in French 3 Feb 82 p 17

[Article by Sophie Chegaray: "CRO: Bietry Lagoon Particularly Imperilled"]

[Text] The Oceanographic Research Center [CRO] is in a better position than anyone else to appreciate the level of pollution in Bietry lagoon and the threats hanging over this body of water: the CRO is indeed charged with a multi-disciplinary physical study program of Ebrie lagoon which began after the Second World War and has brought the organization to ascertain the irreversible evolution of the lagoon since the opening of the Vridi canal.

Yet the CRO program has only been in force on a continuous basis for about 10 years: topography of the lagoon bed, water temperature and evaporation, fresh water alluvial deposits, hydrous exchanges between the sea and the lagoon, and hydrochemistry (salinity, nutrients, and organic matter) are topics that have been under intensive study for several years.

The CRO can thus affirm the extreme fragility of the lagoon environment: being very wide open, it is subjected alternately to incursions of water from the continent and from the sea. Since it is moreover very shallow, it is very exposed to external disturbances, whether climatic in nature or caused by human activities.

Intense Urban Pollution

Bietry bay proper, on account of the profound changes it has undergone during the last few years as a result of urban pollution (demographic growth and industrial development) has been the subject of special study by the CRO since 1979: extensive deoxygenation of the water has also been noted, and this leads to a state of asphyxia (anoxia) of the natural habitat and results in seasonal mortality.

Urban effluent and agro-alimentary run-off are the main sources of pollution in the lagoon, on which an ever-increasing burden of assimilation is

placed every year. Urban waste in particular is generally laden with bacteria and viruses of which a fairly large number are pathogenic for human beings and for animals: salmonellosis, colitis, typhoid, hepatitis, poliomyelitis, septicemia, rheumatic heart disease, animal virosis, and so on.....The list is an eloquent one, and the anxiety it may arouse is well and truly justified.

Bacteria Nourished by Organic Matter

Though in a marine environment bacteria undergo stress as a result of the salinity, temperature, dilution, and lack of organic matter, it is not the same with a lagoon, in which self-purifying capacity is low; in addition, since the bacteria find considerable nourishment in the organic matter, their resistance is higher: "the waste material dumped into Bietry lagoon is in such quantity that it disturbs the phytoplanktonic flora and creates an excessively rich milieu that is unhealthy for eutrophication," as expressed in the latest CRO report. Which in simpler terms means that Bietry lagoon is so rich in nutrients that it is on the verge of crisis; the beds of some of its bays have already reached the critical stage at which the milieu is becoming deoxygenated, anaerobic, hostile to certain forms of life, and favorable for the appearance of methane and hydrogen sulfide (which gives off a putrid odor).

Precocious Sexual Maturity of Sardines

If to the endemic condition are added 400 tons of hydrocarbons to cover the body of water with a thick greasy film, there is every likelihood of precipitating the phenomenon of deoxygenation.

The argument put forth by SIR is that bacteria, present in large quantities in the lagoon, take on the task of digesting the hydrocarbons as time passes, since the hydrocarbons are organic compounds. But still, the bacteria population has to be the right type to consume hydrocarbons.

Mysterious Hydrocarbons

Does anyone even know what sort of hydrocarbons are dumped by SIR? It makes the fight all the harder since the latter stated at a meeting at the Ministry of the Environment that it could not find out in under 3 months, of course.

In any case, it should be known that there exist hydrocarbons known as "aromatic" that are capable of having an effect on the mutation of an organism. Now, CRO researchers have for some time been observing precocious sexual maturity in ethmaloses (sardines), clearly indicating physiological stress being undergone by this animal species. It would of course be hasty to establish a cause and effect relationship between hydrocarbon pollution of Bietry lagoon and mutation in these sardines. Nevertheless, the evidence is there and merits some consideration.

The Trash-Can of Abidjan

Pietry lagoon, a veritable broth into which the abattoirs, SIR, Elohorn, and so many others dump all their organic and chemical refuse, is on the brink of ecological crisis, of which it is impossible to gauge the consequences on the local environment and on human beings.

Located in the heart of the capital, where 1.7 million inhabitants are assembled, the "trash-can" of Abidjan may suddenly become a danger to us all.

121.9

CSO: 5000/5673

DROUGHT-CAUSED FOOD NEEDS LISTED, INTERNATIONAL APPEAL MADE

Maputo NOTICIAS in Portuguese 27 Feb 82 p 1

[Article by Jose Pinto de Sa]

[Text] Now the rain has begun to fall with the same extraordinary intensity that characterized its lengthy absence. The coastal districts of Nampula and Cabo Delgado provinces, most affected by the 1981 drought, are in danger of flooding. The Monapo River, which did not have a drop of water at year's end, is threatening to overflow its banks.

In their crazy cavalcade, the unbridled elements are raging differently. The spectre of thirst is rising again in the south of the country and the alert has already been sounded in Maputo Province, where Magude District, in particular, is recording an unusual drought.

Even in the north, where the rains have begun to fall again and the farms are surprisingly vigorous, the danger is not yet over. In the areas affected by the drought for several seasons, the rains only began to fall in January, causing a delay in planting that will certainly be felt in the next harvests.

Sources linked to agencies involved in combating the disasters foresee that the populations in the affected zones will have to be provided with food during all this year and until the June 1983 harvests.

In August 1980, the Mozambican Government asked for assistance from the international community, which responded favorably. The following year, although the authorities did not consider it necessary to repeat the appeal, the drought continued to make itself felt, becoming even worse in some provinces.

In 1981 the government took some measures to combat the drought, such as channeling surpluses from Tete, Niassa and Zambezia provinces to Cabo Delgado and Nampula, which were more hunger-stricken.

At the same time, some donations from the international community, which were meant to combat the previous year's drought in the southern provinces but which did not arrive in Maputo until 1981, were channeled to the northern coast.

On 18 February, as the situation continued to be troubling, the Council of Minister was obliged to renew the appeal it had made 2 years earlier.

"In addition to the internal measures already adopted by our government, we must again call on the international community to stand firmly beside the Mozambican people afflicted by drought and famine," said the government communique released on that date.

In the document, the Council of Ministers declared the coastal districts of Cabo Delgado and Nampula provinces natural disaster areas and announced that the affected populations would be given all the support possible, both in foodstuffs and in production tools.

In its 18 February communique, the Mozambican Government also announced its decision to inform the international community of the extent and severity of the situation created by the drought, "so that the latter may make a significant contribution in support of the People's Republic of Mozambique."

The first official estimates released reveal that the drought currently affects 1,407,000 people throughout the country, or about one-ninth of the population.

Nampula Province is currently the hardest hit, with 565,000 people affected, primarily in the coastal districts of Melba, Monapo and Erati.

According to the cited estimates, Cabo Delgado Province is also seriously affected, with 282,000 people suffering from the effects of the drought, mainly in the districts of Chiuva, Palma and Mocimboa da Praia.

About 220,000 people in Manica, 150,000 in Tete, 130,000 in Sofala and 60,000 in Inhambane are also in great need of assistance.

A drought of these dimensions cannot fail to have serious repercussions on the overall food situation in the People's Republic of Mozambique, even including the provinces considered to have been spared from the disaster.

With a normal overall need of 515,000 tons of grain, Mozambique produces only 170,000 tons and is thus obliged to import the remaining 304,000 tons.

In fact, in addition to the planned imports for 1982, amounting to 304,000 tons, it will be necessary to acquire food for the 1,407,000 people affected by the drought.

In the past, these 1.5 million people have been self-sufficient with respect to food supplies and even contributed their surplus to supply the cities. Just the normal planned imports of 304,000 tons already place an extremely large burden on the nation's economy, and "will be possible only with some recourse to food assistance from the international community," according to recently published government reports.

Normal planned imports represent an expenditure of foreign exchange amounting to about 20 percent of the nation's total exports in 1981, and are impossible with the financial resources available.

Since it will also be necessary to help feed the 1,407,000 affected by the drought for at least 12 months, the additional food needs amount to 180,000 tons of grains and 18,000 tons of beans; aid other than food is also needed to support increased production, including more than 30,000 hoes and other implements and over 11,000 tons of seed for corn, "mapira," peanuts and beans.

Making the situation worse, because the drought came down hardest in the major cashew nut-producing regions, it is estimated that less than half the normal quantity will be marketed, and cashew nuts are the country's principal source of export revenues.

"This will have serious repercussions on receipts in the affected zones and also on the country's financial capacity to import grains," according to official sources.

To combat the grave situation described here, the Mozambican authorities have asked the international community for emergency aid, both in food and in production tools so the affected populations can be organized "to return rapidly to the primary task of agricultural production."

According to official sources, the international community is responding favorably. Positive replies are beginning to come from various countries and international organizations.

The Mozambican revolutionary authorities are rejoicing in the response to their appeal, although they are aware that natural disasters will continue to be a terrible affliction until Mozambican agriculture is able to dominate the forces of nature, relying on its own capabilities.

6362

CSO: 5000/5695

CROPS IN NORTHERN NATAL HIT BY DROUGHT

Johannesburg THE CITIZEN in English 22 Mar 82 p 7

[Article by Tim Clarke]

[Text] **DURBAN** — The majority of the maize crops in Northern Natal appear to be a write-off because of the prolonged drought, according to a spokesman for the Natal Agriculture Union (NAU) and local farmers.

It was estimated in mid-January that the maize crop would be about 500 000 tons.

At present, according to local farmers and the Agricultural Union, the crop might barely make 100 000 tons.

The worst affected areas are Newcastle, Vryheid, Dundee and Paul Pietersburg. In these four districts the maize crop has been so severely hit by the intense heat that it is almost a total failure. Two other areas which are badly affected are Ladysmith and Berg-mill. In these two areas the maize crop has about a thirty percent chance of being fully produced.

Also badly hit by the prolonged drought is the sugar crop in the Pongola district.

The fierce heat in the area, according to local farmers, means that the final output will almost be a total write-off. Cotton in many areas of Zululand is also taking a hard knock because of the drought conditions.

Foreign financial organisations have offered the maize industry loans totalling R219-million to develop Richards Bay as an export harbour.

The economist of the National Maize Producers' Organisation, Dr Kit Le Clus, said the loans were offered on favourable terms and would enable the industry to build facilities enabling it to export six million tons of maize a year, with storage space for 500 000 tons of maize.

Dr le Clus said capital expenditure had been calculated at the present day value of money, but the port facilities would eventually cost more than R380-million by 1987/88, when the maize industry took them into use at Richards Bay.

The port facilities would mean additional earnings in foreign exchange of twice the sum earned in foreign exchange each year by the Saldanha-Sishen project.

He said East London and Durban harbours would still be used for exports. However, he expected East London to handle 25 percent of the exportable surplus after Richards Bay came into operation and Durban 15 percent. The maize industry was not bound to exporting certain volumes through specific harbours. — Sapa.

CSO: 5000/5710

KRUGER PARK MINING PROJECT DROPPED

Johannesburg THE CITIZEN in English 19 Mar 82 p 14

[Article by Keith Abendroth]

[Text]

CONSERVATION-
ISTS are jubilant and the National Parks Board is in a celebratory mood following the formal announcement by Iscor yesterday relieving the Kruger National Park from any colliery development in its northern areas.

Mr Boet Immink, public relations chief of the board, told The Citizen: "This is great news. Its heartwarming news. Even though we are protected by the National Parks Act, we have been afraid of this Democratic sword over our head for some time."

He said it was now probable that "we shall never see mining in the Kruger Park in our lifetime — and with new and revolutionary methods of steel making coming to the fore there will possibly never be mines in the Kruger Park."

Professor John Skinner, vice chairman of the Wild Life Society of South Africa, said the society had taken every possible step to prevent the spoiling of South Africa's national heritage — and had been particularly opposed to the Kruger Park mining project.

"We welcome this statement and we hope that, as a result of what has happened, any

ideas of this nature will in future first be pre-saged by thorough study and research.

"At the same time it is encouraging to see that Iscor itself appreciates the enormous value of the Kruger Park. We are glad that it endorses the views of the conservationists."

A long statement released by Iscor yesterday said that every possible alternative method of making steel — to avoid and replace the use of coking coal in the process — was being explored.

For this and other reasons the urgency of exploration work in the Kruger Park had diminished.

"The public may rest assured that Iscor attaches as much value to the conservation of the Kruger Park as anyone else and will never lightly take decisions which would harm this national heritage.

Iscor's own conservation projects bear testimony to the serious manner in which the matter is approached."

Last year the corporation used 6.3 million tons of coking coal, of which 4.3 million tons were bought from South African sources and the remainder supplied by its own two collieries.

However, the corporation was planning

ahead for the erection of formcoke plants and a R90-million contract had been awarded for the erection of a direct reduction plant at the Vanderbijlpark works.

Because large ton-nages of coking coal were still required for the remaining coke ovens — which had a replacement value of about R1 000-million — Iscor had continued to search for new deposits to replace the dwindling coking coal sources.

Indications had been found of rich deposits in the Kruger Park.

However, urgent consideration was being given now to producing coke from non-coking coal through a formcoke plant.

Nowhere in the world was there a large plant in operation which exclusively used non-coking coal.

"Despite this state of affairs Iscor, on account of its coking coal problem, is giving serious consideration to the erection of a formcoke plant on an industrial scale.

"Such a plant would further reduce but not altogether eliminate the need for coking coal, since the percentage of coke which might possibly be replaced by formcoke is not known at this stage," the statement read.

DODOMA REGION APPOINTS COMMITTEE TO MONITOR LAND RECLAMATION

Dar es Salaam DAILY NEWS in English 11 Mar 82 p 3

[Text] DODOMA Region has appointed a six-man committee under the chairmanship of the Kondo District Party Chairman, Ndugu Mohamed Kova, to supervise and monitor land reclamation efforts.

The committee, appointed by the Regional Development Committee has been instructed to ensure the implementation of recommendations passed by the RDC on ways to arrest land degradation in the region.

The recommendations were made by a special team selected by the RDC in March, last year, to establish the extent and reasons for land degradation in the region, and suggest ways to reclaim the land and protect the environment.

The select team charged in its report presented to the RDC on Tuesday that by-laws were necessary to control the activities of people or companies whose work, particularly tree felling and livestock rearing, would lead to land degradation.

The report recommended that each district institute its by-laws and that a special campaign be initiated to educate the peasants on the dangers of soil erosion and the appropriate steps they should take to check the situation.

Poor agricultural methods, overstocking, indiscriminate exploitation of forests and

interference of water sources were singled out as the major causes leading to soil erosion in various parts of the region.

Plans to use fire woods for the Zuzu brick and tile factory now nearing completion should be shelved aside for the time being and instead consider using coal, it was suggested.

Suggestions were also made to spread water dams and other livestock water supply facilities in scattered places to reduce congestion of livestock heads in few areas with such facilities, which has led to soil erosion. There are 1.7 million heads of cattle in Dodoma Region.

CHEMICAL POLLUTION IN MWAMBASHI RIVER THREATENING LIVESTOCK

Lusaka DAILY MAIL in English 13 Mar 82 p 5

[Excerpt]

CHEMICAL pollution in Mwambashi River is threatening lives of hundreds of livestock on farms along the river's banks in Kitwe district and already some farmers have lost cattle.

This was revealed yesterday when Kitwe governor Mr Raphael Mwale conducted a tour of farms in his district to acquaint himself with the farmers' problems.

The farmers told the governor that during dry season there was a heavy copper pollution in Mwambashi River where most of them on the northern side of the district draw their water from, and that most of the animals died after drinking the water.

Mr Mwale promised that he would take up the matter with other relevant institutions to find a solution to the farmers' problems.

CHILANGA CEMENT REHABILITATING DUST PRECIPITATORS

Lusaka TIMES OF ZAMBIA in English 12 Mar 82 p 2

[Text] CHILANGA Cement has renewed its war on pollution caused by dust emission from its kilns which in the past has caused public outcry.

Only last year the parastatal organisation narrowly escaped court action by Ndola district council for allegedly polluting the city.

But yesterday, an Indeco spokesman said in Lusaka that Chilanga had begun to carry out work on the rehabilitation of dust precipitators on the kilns at both Chilanga near Lusaka and Ndola works to control dust emission.

He said in a statement that one dust precipitator on kiln number three at Chilanga had already been overhauled and commissioned.

The spokesman could not

say how much the declared onslaught on dust pollution would cost but he emphasised that kiln number two was stopped in January for rehabilitation work which was expected to be completed by July.

The precipitator parts were on the site and erection of the filter was scheduled to start in the middle of the year with a target completion date of middle of next year.

The first kiln which had no filters would be stopped indefinitely after July as soon as kiln number two was revamped.

At Ndola, he said, all the dust precipitator parts for

kiln one supplied under Danish government aid had been received and installation was to start when an expert from the equipment suppliers arrived.

"His arrival has been delayed because of recent introduction of new visa application procedures," the spokesman said.

The company had received quotations for the supply of spare parts for the dust precipitator on the second kiln at Ndola.

Detailed telex quotations had been received but these were no longer acceptable for obtaining letters of credit under Bank of Zambia regulations which came into effect last May.

CSO: 5000/5701

BRIEFS

SEARCH FOR WATER--Bulawayo--Rural people in Matabeleland South have again started to cross the border into Botswana in search of water, an extension officer for Matabeleland said here yesterday. In an interview with Ziana, the extension officer said similar incidents were reported last year but were stopped in time. Now the rural people were doing it again because of the drought. The belief that there was a lot of underground water in many parts of Matabeleland was not true since water pans which provided water were either dry or too deep to drill, he said. However, in Tjolotjo and Qwaai purchase areas there was some underground water since there were aquifers underground. The extension officer said the recent call for district councils to inform their provincial water authorities of their water needs was being heeded. [Text] [Salisbury THE HERALD in English 19 Mar 82 p 5]

CSO: 5000/5706

MINISTRY GIVES FIGURES ON COST OF POLLUTION POLICY

Paris LE MONDE in French 23, 24, 25 Feb 82

[Article by Marc Ambroise-Rendu]

[23 Feb 82 pp 1, 14]

[Text] Ecology and economics have never hit it off with each other. The one talks about the balance of ecosystems and the quality of life, while the other is interested in monetary balances and things that can be quantified. The disagreement would be of no consequence if the ecologists had no need of money. But they are seeking it in order to pursue a policy of safeguards, and that policy is not without its effects on economic life.

How much does pollution cost? How much is being spent to combat it? What are the environmental policy's consequences as far as employment, prices, and the balance of payments are concerned? It is time to talk figures.

Pollution More Expensive Than Unemployment

First a word on the method used to come up with the figures. It was devised by a group of experts headed by Jacques Theys, 32, who is an engineer from the Central School, a doctor in economics, a professor of environmental management at the Paris-IX University, and an adviser to the Ministry of Environment.

Ecology is expensive--very expensive. The figures speak for themselves: the damage caused by pollution and the efforts made to reduce that damage cost the French 110 billion francs in 1978. In that impressive bill--3.4 percent of the GNP--the damage done accounts for 80 billion. That is twice as much as the expenditures, losses of all kinds, and lost earnings resulting from unemployment.

Of course, no accounting in terms of cash can measure the psychological and social ravages caused by loss of employment, but there are many other attacks on the setting of life that are not measured either. So it is necessary to take those data for what they are: rough estimates and a basis for reflection.

It would be a lengthy and difficult task to describe in detail a very complex job that took several months to complete and required the efforts of half a dozen people. Roughly, the researchers began by choosing 24 pollutants. They evaluated the physical damage done by those pollutants in 15 geographical areas and by "category of receptor"--that is, its effect on the health of the inhabitants, the behavior of materials, worker productivity, and so on. Then, for a certain number of pollutants that have been more thoroughly studied than others--such as noise, dust, and sulfur oxide--they tried to translate the damage into francs. Lastly, they used those indicators to try to extrapolate the results to all pollutants and nuisances over the entire territory. Their work is summarized in the table below, which has been published by the Ministry of Environment.*

Damage Caused by Pollution and Nuisances
(Estimated in billions of 1978 francs;
exposed population: 53 million)

Group of pollutants	Low hypothesis	High hypothesis	Percent of total damage
Noise	17.5	22.0	25
Air	16.0	20.0	23
Water	13.0	16.0	18
of which:			
Traditional pollution	7.0	8.0	9
Toxic pollution	4.0	5.0	6
Hydrocarbon pollution (continent water, sea)	2.0	3.0	3
Thermal pollution and ionizing radiation (water and sea)	5.5	7.0	8
Nitrates, phosphates, pesticides (water and soil)	11.0	13.5	15
Solid waste	7.5	9.5	11
Total	70.5	88.0	100
As a percentage of GDP	3.3	4.1	

Are the figures they obtained credible? If we compare them with figures arrived at by other teams using different methods in other industrialized countries, we find that if anything, they fall short of the true picture. As one example, the damage caused by air pollution is estimated to represent from 0.74 to 0.93 percent of the GDP. But the Italians have estimated it to be 0.69 percent of their GDP, while the spread is from 1.70 to 2.34 percent of the GDP in Great Britain and from 2.18 to 2.90 percent in the United States. Either our country's air is more wholesome than that elsewhere or our estimators were too cautious, and there is every reason to think that the second hypothesis is unfortunately the correct one.

How do the various items on the bill stack up? In the case of air pollution, heating equipment and vehicles emit 10 million tons of pollutants in an average year. Added to that are the 7 million tons thrown out by factory smokestacks. That gigantic blast of gas, which carries a multitude of particles, is not harmless: it

* "Economic Environmental Data 1980," Ministry of Environment, 14 Boulevard du General Leclerc, 92522 Neuilly.

causes respiratory troubles and even respiratory diseases (see LE MONDE DIMANCHE, 25 January 1981), it attacks paint, eats into car bodies and buildings, reduces the production from grasslands and forests, acidifies lakes, and deprives us of part of our sunshine. Those disadvantages of all kinds are estimated by Jacques Theys and his team to cost between 16 and 20 billion francs per year. Their estimate is in line with the summaries produced by OECD experts, who feel that in that organization's 11 European member states, the total damage due to sulfur oxide (SO₂) alone amounts to between 100 and 150 billion francs per year.

French rivers carry 13.5 million tons of organic matter, toxic substances, and hydrocarbons to the sea each year. They would seem to be a cheap sewer. But in fact, that "cocktail" penalizes fishermen first of all, and they have been sounding the alarm for a long time. Their protests are perfectly admissible, even from the economic standpoint. An example is salmon, which used to be abundant everywhere. It is a fish that is born in Europe, goes off to fatten up free in the Atlantic, and comes back with from 2 to 15 kilograms of succulent flesh. But pollution has driven it almost completely away. As a result, we now import it at great expense, salmon lovers go to fish for it in Ireland, and we encourage salmon farming, which obviously costs a great deal.

Pollution has also ruined our streams--to some extent--from the standpoint of the leisure-time activities they used to provide at no cost.

Their waters are sometimes so dirty that industry itself can no longer use them.

The rivers are obviously even less suitable as a source of drinking water for the cities. Pumping must always be accompanied by energetic cleaning, and water distribution companies spend 3.24 billion francs a year for that purpose.

In total, the chronic pollution of rivers, estuaries, and coastal waters costs between 13 and 16 billion francs, to which must be added the accidents known as oil spills. But it is difficult to call them accidents when one reels off the litany of tankers that have broken up in just a few years off Brittany's coast: the Torrey Canyon, the Olympic-Bravery, the Boehlen, the Amoco-Cadix, the Gino and the Tanio. According to the OECD, which has studied more than 90 such accidents, the cost of cleaning up a ton of spilled petroleum rose from 1,500 francs in 1970 to 5,000 francs in 1980. And even that does not take into account the immense ecological damage done to our natural resources.

Rivers and coastal waters are not used only as convenient dumps for all kinds of organic material, toxic substances, and hydrocarbons. They are also used to cool countless machines, of which the most visible are electric powerplants, whether fired by fuel oil, coal, or nuclear fuel. The resulting rise in water temperature is regarded as genuine thermal pollution that disrupts aquatic life. Although electricity producers have always tried to reduce those effects to the minimum, the damage done is estimated at between 5.5 and 7 billion francs per year.

But water is not off the hook even at that. A report on "Agricultural Activities and Water Quality," published by the Ministry of Environment in 1980, estimates that over 9 million tons of nitrogen are deposited in French territory by the decomposition of humus, fertilizers, manure, and so on. A fraction of that nitrogen

evaporates, but rain carries sizable amounts into the rivers, while still more slowly infiltrates underground water. In many rural communes, the water pumped out of the ground is just barely drinkable.

The farmers are partially to blame for this new kind of pollution, which was unknown even recently.

In all, the damage caused by nitrates, phosphates, and pesticides adds up to between 11 and 13.5 billion francs per year.

The ground itself is not exempt. It receives everything that cannot be disposed of in the air or in streams. The result is that 16 million tons of household refuse and 42 million tons of industrial waste are added to the ground every year. The areas thus rendered barren cover an impressive amount of space. To the 7,000 hectares occupied by more or less uncontrolled garbage dumps, we can add 26,000 hectares of mining dumps and 56,000 hectares of gravel pits and quarries, many of them abandoned. Not to mention the industrial wasteland that spreads like leprosy as factories are moved.

Chemical Dumps

In this respect, the debts of the past have still not been absorbed. The National Waste Agency has made a list of about 60 dangerous industrial dumps throughout the territory. But the chemical industry has been burying its waste here and there for a century and a half. In the Netherlands, for example, authorities have identified 4,000 zones polluted by chemical waste that was abandoned in times past by industrialists who cared little about the future. How many are there in France? In any case, the damage done to the ground in our country is currently estimated at between 7.5 and 9.5 billion francs per year.

The noise emitted by tens of thousands of stationary machines, and above all by 27 million vehicles (airplanes, cars, motorcycles, trucks, tractors, lawnmowers, and so on) has become the number one scourge. Inhabited areas that do not suffer from the din are rare today.

Taking everything into account, pollution and nuisances are estimated to have cost the country between 70 and 88 billion francs in 1978. And the threshold of 100 billion was certainly passed in 1981.

Although very imperfect, the table summarizing those estimates enables one to compare their orders of magnitude. A few remarks are called for. Water pollution by organic matter, toxic products, and hydrocarbons represents only 16 percent of the damage. This is most certainly because this sector has been regulated since 1964 by a specific law providing for the establishment of waterways financial agencies. For the past dozen years or so, huge investments have been devoted to the construction of several thousand filtering plants that get rid of organic matter. But those plants can do nothing to counteract thermal pollution and nitrates, which cause at least an equal amount of damage. A second front has been opened, and that is where the battle must be waged now. Did we not pick the wrong adversary to begin with?

Neither is it by chance that noise and air pollution, for which no basic law, tax, or agency exists, are costing so much. Estimating damage is therefore not a futile exercise for environmental officials. It may open their eyes to the real priorities.

Result of Efforts

This tally is merely a picture of the French situation in 1978. In which direction is it moving? According to Theys, the cost of the damage in constant francs rose by 10 percent between 1970 and 1978. But during those 8 years, production rose by 38 percent. This means that the share of the GDP amputated by pollution fell from between 4 and 5 percent in 1970 to between 3 and 4 percent in 1978. So the efforts put forth by industry, the government, and local communities have not been in vain.

Has that relative decline continued over the 3 years just ended? We will know in a few months, when the Ministry of Environment completes its current updating of the tally. Unfortunately, that original piece of work will not enable us to compare the situation in France with that in other industrialized countries, since for the moment, France is the only country to attempt such an overall evaluation.

[24 Feb 82 p 30]

[Text] Since the years of fat cows have passed, ecologists along with everyone else are having to learn to count and compare accounts. The language of figures is not familiar to those who talk about quality rather than quantity (see the above article). But even from the economic standpoint, their track record is not bad--far from it. According to estimates by experts, pollution and nuisances chop from 3 to 4 percent (80 billion francs) off the French GDP every year. How much is being spent to reduce those huge losses (which are equal to the loss from unemployment)?

Ecology's accounts are not easy to keep! Certainly, it is understandable that making a monetary estimate of the deterioration of the setting of life is such a perilous exercise that only France has attempted it to date. And that rough figures are the best one can come up with. But it is even more surprising to note that 10 years after the establishment of an ad hoc ministry, one scarcely knows how much is being spent by the government, industry, and individuals to benefit the environment.

It must be admitted that it is not easy to determine how much of the money spent on building a dam goes to protect the river and how much goes to produce electricity. And the same is true of industrial equipment that may reduce a firm's waste while simultaneously improving its productivity.

It is also true that the minuscule team of researchers preparing those figures at the Ministry of Environment lacks the necessary means of observation. As a result, the figures produced are also more a matter of rough estimates than of precise measurements. Roughly, it can be said that the French spent 38 billion francs in 1978 in an attempt to protect nature and the setting of their life.

The government's expenditures are the least vague. They can be added up beginning with 1972, the first year of "normal" operations by the Ministry for the Protection of Nature. They are shown in the table on the following page, which has never been published before.

The amounts considered here are those allocated not as payment credits and ordinary operating expenditures but as program authorizations for investments. Since the Ministry of Environment is new, it must be judged on its investments rather than on routine expenditures.

The first observation is that funds allocated to the ministry have always been symbolic. They have never exceeded two- or three-thousandths of the government's budget, and this year they are at their lowest level. They are used for the protection of nature (national parks and nature preserves), the prevention of pollution and nuisances (air, water, waste, and noise), and miscellaneous selective actions to improve the quality of life (green spaces and the organization of time).

Those meager funds are beefed up by the money that a dozen other ministries are supposed to allocate individually to the improvement of the environment. The way those amounts are calculated--devised 10 years ago and never changed since--is rather questionable. As one example, it was hurriedly estimated that the credits allocated by the Ministry of Health to hydropathic establishments contribute in their entirety to improving the environment. On the other hand, 2 percent of the investment in freeways is supposedly beneficial to nature, as is--no one knows why--15 percent of the Ministry of Culture's credits. It seems urgent to review that doubtful accounting. Even assuming that it represents cash, one notes that government investments in the environmental area have risen from 1 to 2 billion francs in 10 years--meaning that they have doubled in terms of current francs. But while the increase was real in 1972, 1973, and 1974, it has since concealed a slow but steady erosion throughout Giscard d'Estaing's 7 years in office and the beginning of Francois Mitterrand's term.

Environment's share of total government investment dropped from 2.48 percent in 1974--already an unsubstantial amount--to 1.10 percent for 1982, a truly barebones figure. Despite repeated assertions to the contrary, a little less is being spent every year to improve the setting of life. The government is pulling out. It is content to manage the protective organizations already established, as though the problem had been solved.

So is management becoming more expensive? Not so. In terms of payment credits and ordinary expenditures, the Ministry of Environment's share of the national budget has remained within a range of 0.06 to 0.1 percent over the past 10 years. Proportionately, its share for 1982 is the same as it was in 1973. Environmental management is costing neither more nor less, and that means that in any case, it is costing very little.

Luck of the Veterans!

By way of comparison, the budget for culture--supposedly a modest one--was four times as high as the environment budget in 1981, and in 1982 it will be eight times higher. And the budget for veterans is 33 times higher!

Development of Environmental Budgets (as program authorizations)
(in millions of francs)

	1972	1973	1974	1975	1976	1977
Total government budget	51,510	56,567	63,864	73,154	82,233	91,625
Ministry of Environment budget	159	201	238	268	278	254
"Environment" budget in other ministries	971	1,080	1,353	1,355	1,486	1,272
Total environment budget	1,130	1,281	1,591	1,623	1,764	1,526
Percentage of government budget	2.19	2.26	2.48	2.21	2.11	1.66
Change in budget (year to year)		+13.4	+24.2	+ 2.0	+ 8.6	-13.5
Inflation rate		+ 6.2	+ 7.3	+13.7	+11.8	+ 9.6

	1978	1979	1980	1981	1982
Total government budget	104,702	118,382	134,678	152,860	184,130
Ministry of Environment budget	344	353	387	541	417
"Environment" budget in other ministries	1,266	1,389	1,538	1,365	1,624
Total environment budget	1,610	1,742	1,925	1,906	2,041
Percentage of government budget	1.53	1.47	1.42	1.24	1.10
Change in budget (year to year)	+ 5.4	+ 8.2	+10.5	- 1.0	+ 7.0
Inflation rate	+ 9.6	+10.0	+10.5	+13.6	+14.0

The result is that the environmental budget would be receiving the smallest share if it were not being rescued by the communes and departements [political subdivisions]. Of the 22 billion francs spent by public environmental agencies in 1978 (half in investments and half in operating expenditures), the national government provided 7.5 percent, government agencies (waterways agencies, the Hunting Office, the Waste Agency, and so on) 7.5 percent, and local communities 85 percent. Here is an area where decentralization occurred before being made official.

How have those expenditures evolved? In current francs, they tripled between 1970 and 1979. But in constant francs (that is, taking price rises into account), the increase is less pronounced. They rose by 56 percent between 1970 and 1978, but then the curve swooped downward. Does that mean the beginning of restrictions? In any case, the share of environmental investments in total government investments has fluctuated between 13 and 16.6 percent over the past 10 years.

The municipal councils are therefore taking the lead in the battle to protect the environment. How about the firms? According to the administration, they spent 5.2 billion francs in 1978 to install filters in their smokestacks, equip their drainage systems with filtering devices, and maintain all those "prostheses." There is uncertainty here, too, because expenditures to combat air pollution are

the subject of estimates varying so much that the highest is three times as high as the lowest. Discussions are underway among professionals in an attempt to clear up the matter.

A look at the official figures calls for four remarks. First of all, the cost of maintaining filtering equipment currently exceeds investments on the firms' books. With the period of "reconquest" over--although far from being complete--the era of management is arriving.

In the second place, the effort made by industry is not negligible, but it is nevertheless far below that made by the public sector. Industry is spending 5.2 billion francs, while the public sector is spending 22.2 billion, or four times as much. In the case of the firms, that represents 2.4 percent of their investments, while in the case of the public sector, it represents 16.6 percent, or seven times as much. Is this not an example of transferring costs to the public? All indications are that so far, the choice has been made to make the French pay environmental costs not through the price of goods but through their tax bills.

That is an obvious violation of the famous and constantly repeated principle that "he who pollutes pays." Application of that principle should lead the firms to install antipollution equipment and then to add that extra expense to their manufacturing costs. In the jargon of economists, that is called "internalizing external costs."

As one example, silent and nonpolluting cars would certainly be more expensive to purchase, but then the community would not have to finance soundproof walls, insulation in houses, and the fight against respiratory disease.

Japanese and Americans in the Lead

Another observation: the various branches of industry are not all in the same boat. Papermills--great polluters of streams--devote 15 percent of their investments to filtering techniques, while the figure for metal processing firms is 11 percent, for the textile industry 8 percent, for energy suppliers (electric powerplants, refineries, and so on) 5 percent, and for transportation only 1 percent. Those differences are due basically to our policy for protecting the quality of life, which has so far assigned priority to the protection of streams. Factories that discharge liquid effluents have therefore been on the front line for 12 years. If the various administrations had been equally vigorous in encouraging or forcing the firms to filter their gas, muffle their noise, and treat the landscape with care, the financial effort would have been distributed more harmoniously.

Lastly--and this confirms the above observation--French industrialists spend less money to preserve the environment than their foreign colleagues do. In 1975, for example (the latest year for which comparisons are possible), Japanese industry allocated 4.6 percent of its investments to antipollution equipment, American employers spent 3.4 percent, the Germans and Dutch 1.9 percent, and the British 1.7 percent, while the French allocated only 1.37 percent for that purpose.

This leaves individuals, who also contribute in their own way to the common effort. For example, by using garbage bags, fixing up their yards, paying their water (and thus their sanitation) bills and their local taxes, installing double windows to block out noise, and so on. Such expenditures are even more difficult to assess than those by public agencies and industry, but they were estimated at 5 billion francs in 1978.

If correct, it means the French spent a total of 32.5 billion francs on the environment in that year, for an average of 1,620 francs per household, with the government contributing 68 percent, industry 16 percent, and households 16 percent.

That is a modest effort, considering that it represents only 1 percent of the GNP. To the extent that comparisons are possible, it is equal to the Swedish effort, but below that of the Japanese (1.6 percent of the GNP) and the Germans (1.8 percent) and half as much as the American effort (2 percent).

There are plenty of explanations for the situation. Pollution in France is probably less serious than it is in Japan, Germany, and the United States. But it is also true that our industry is given less incentive to fight pollution.

[25 Feb 82 p 30]

[Text] If we are to believe the figures--which should be approached with caution--pollution costs France 80 billion francs a year, or as much as unemployment (see the articles above). To reduce those nuisances, the French as a whole--national and local government, industry, and individuals--spend about 30 billion francs a year. What effect do those financial efforts have on pollution reduction, not to mention prices, productivity, employment, the balance of payments, growth, and so on? In short, what is the economic fallout from ecology?

The financial sacrifices made by the French to preserve nature and improve the setting of their life--amounting to about 30 billion francs per year over the past 10 years--have not been in vain. The health of our streams is improving, the air in the cities is less unbreathable, and there are more and more green spaces. On the other hand, noise pollution is on the rise everywhere, new pollutants are making their appearance, and a number of animal species are on the way to extinction. It can therefore be asked whether, as a result of stinginess or timidity, the financial effort has not been held below its threshold of effectiveness. Asking that question means raising the thorny problem of what the experts call cost-benefit analysis.

Let us say immediately that no economist is currently able to say whether investments in the environment are paid back by an equivalent reduction in the cost of the damage done. Well-disposed people even say that such comparisons will always be impossible and that we are wasting our time to attempt them. And on the strength of that, requests for credits to benefit the environment have been justified for the past 10 years on the grounds of a sort of ecological-psychological imperative.

It is true that ecosystems can no longer endure what has been heaped on them by decades of irresponsible growth and that the French are becoming increasingly

sensitive to nuisances. But if the economic crisis grows worse, their sensitiveness will grow dull. And then the attitude will be: too bad for nature, and too bad for the weak. It will become imperative to know whether investment in ecology is an investment that pays off or not.

But a few facts are available all the same. For example, three researchers working for the Ministry of Environment have estimated that the reduction of air pollution does bring savings in many areas: fewer days lost from work, lower medical costs, savings in cleanup work, less corrosion of materials, a slower deterioration of housing, and so on.

Calculated in 1978 francs, the benefits as a whole could add up to about 12 billion francs a year, and to that we should add the benefits of improved agricultural and forest yields. According to the Interprofessional Technical Center for the Study of Air Pollution (CITEPA), the amounts invested in the installation of air filters and the cost of operating them total 1.7 billion francs per year (in 1978 francs). The ratio would therefore be 1:7. Does this mean that every franc spent to filter the air would save 7 francs in damage? Things are not that simple.

War on SO₂

The OECD's experts have tried to come up with a cost-benefit analysis for all of Europe's 18 countries, but they considered only one pollutant: sulfur oxide (SO₂). They devised four different policies covering the period from 1974 to 1985. Their conclusion is that by implementing the measures currently in force in the various countries for limiting SO₂ emissions, Europe will spend 1.5 billion francs per year, but that the damage will hardly be reduced at all. On the other hand, if four times as much were spent--6 billion francs per year--pollution would be reduced considerably. The savings thus realized will fall within a range between 4 and 38 billion francs per year. One can see both the imprecision and the interest of such speculation. Increasing antipollution investments in that sector would very probably mean "making money."

The Americans are convinced of it. Their Environmental Protection Agency (EPA) estimates that between 1970 and 1977, the cumulative amount committed to cleaning up the air in the United States totaled \$6.7 billion. Damage reduction was estimated at \$8 billion. Other estimates are even more optimistic. The Soviets also say that reducing air pollution really pays off.

There is abundant cost-benefit literature--chiefly Anglo-Saxon--concerning water. But it is unconvincing, because none of the methods employed is able to put a figure on the benefits resulting from water filtration. Naturally, the methods used are accused of congenital incapacity. It is also possible that from the strictly economic standpoint, all the industrialized countries have gotten off the track in their choice of priorities. Because it was spectacular, technically feasible, and therefore politically useful, they threw themselves into a very expensive policy of cleaning up their rivers and lakes. It is probable that equivalent efforts applied to air pollution or noise would have "paid off" even better.

But the limits of an environmental policy aimed solely at optimizing expenditures are quickly reached. Would 1 cent be invested to protect rare plants and a few

wild animals threatened with extinction? To take one example, it has been estimated that to save the 20 brown bears that still live in the French Pyrenees, it would be necessary to invest from 2 to 3 million francs immediately and to follow that with 3,000 francs per animal and per month for years to come.

Bears and Horses

That investment is the equivalent of a few kilometers of forest road, while the monthly amount is equal to the boarding expense for a racehorse. It is easy to see the value of a forest road and of a star of the Sunday races, but what is a wild bear good for except trouble?

Whether effective or not and whether profitable or not, any policy for protecting the environment is bound to have side effects. Its finicky regulations and "unproductive" expenditures have been accused of slowing the growth of productivity. It is true that the growth rate has slowed everywhere. In the United States, it has dropped in 20 years from 3 percent per year to 1.4 percent, and in France it has fallen from 6 percent per year to 3.9 percent. But many factors besides ecology are contributing to the slowdown: the growth of bureaucracy, the slowdown in research, higher energy prices, and so on.

In any case, the effect of the environmental policies could only have made itself felt over the past 10 years or so, not before that. That is why, according to the concordant findings of several American studies, the concern for ecology bears only 10 percent of the responsibility for the slowdown in productivity gains.

In France, the antipollution policy is reported to have cut the growth in productivity by less than two one-thousandths between 1965 and 1974. The example of Japan is eloquent. There is a country which has made a considerable effort in environmental matters and which, despite (or because of) that, has maintained excellent performance.

The effect of antipollution measures on prices is more clear-cut. It is certain that manufacturers have included those new expenses in their price schedules. This is particularly true in the case of paper, nonferrous metals, iron and steel, chemistry, and automobiles. According to the OECD, environmental protection measures have resulted in price increases of from 0.2 to 4.2 percent--depending on the product and the country--in the space of several years. Taking into account the galloping inflation that has raged almost everywhere for the past 6 years, that is actually a very modest amount.

One of the most spectacular examples of the fallout from policies to protect the setting of life has been the development of activities by planners of green spaces, builders of filtering plants, and manufacturers of air filters, insulating materials, measuring instruments, exhaust mufflers, and so on. The industries revolving around the environment had a turnover of 28 billion francs in France in 1979. Water treatment accounts for one-third of that amount, salvaging for a good one-fourth, and the collection and treatment of refuse for 20 percent, the rest being accounted for by acoustical insulation and the removal of dust from smoke.

Their Own Technologies

Those activities are assuredly indispensable for correcting a disastrous situation inherited from the past, but the future certainly lies in another direction. It belongs to industrialists who straighten out their workshops and modify or radically change their manufacturing processes--in short, those who adopt their "own technologies." Antipollution then becomes the leaven of technological innovation. That policy, which got off to a timid start in France a few years ago, is now gaining adherents. The Ministry of Environment has just published a catalogue listing about 100 examples of such innovations affecting seven industrial branches. In most cases, they also provide savings in energy and in raw materials. It is usual for them to improve a firm's productivity.

The policy for combating nuisances is having its effect on foreign trade. In 1979, French sales abroad of equipment and processes beneficial to the environment totaled 3 billion francs. In return, we buy a host of electronic devices, thousands of gas analyzers, and most of the audiometers that we must have.

That outflow of foreign exchange (more than half a billion dollars in 1979) is the direct and highly prejudicial penalty we pay for the inadequacies of our environmental policy. One example: since thermal powerplants are not required to desulfurize their smoke--an operation required by legislation in the United States and Japan--no French firm has developed an industrial desulfurization process. When it is finally admitted that desulfurization is necessary no matter what--as has happened in the case of a coal-fired powerplant in Gardanne, Bouches-du-Rhone--we are forced to turn to foreign technologies.

On the other hand, France is a net exporter by far in the sector where our policy is the oldest and has asserted itself most strongly: that of water treatment. The companies that specialize in water supplies, purification, filtering, and flood control are active in numerous foreign countries. There are huge markets to be won, notably in the Mediterranean Basin, Africa, the Middle East, Latin America, and Southeast Asia. By the end of the century, 40 metropolitan areas will have over 5 million inhabitants. All of them have vast plans for sanitation and the collection of household refuse.

The Third-World countries need the know-how of the Western nations in the field of ecological planning, development, depollution, impact studies, and new forms of energy. According to economist Theys, that market amounts to several billion francs solely in connection with operations financed by international organizations such as the World Bank. But first our technicians will have to gain experience in the domestic market. Without a vigorous environmental policy, we will not have much to sell.

Such a policy would also create jobs. In France in 1976, 290,000 people were employed in antipollution activities, water supply, salvaging, green spaces, hunting, fishing, and forestry. They numbered 370,000 in 1979. Of that number, 5 percent were engineers, 13 percent were technicians, and 82 percent were clerical or hourly employees. Environment in the broad sense currently employs more wage earners than the chemical and pharmaceutical industry. On the liability side, it is estimated

that the accelerated closing of marginal firms due to the environmental policy did not cause the loss of more than 100 jobs annually between 1971 and 1977.

A new census has just been made for the Ministry of Environment. All activities related to the environment and the management of natural resources were reviewed, sector by sector. More than 500,000 persons were found to be working in antipollution activities, salvaging, in-house technologies, repair and maintenance, energy savings and renewable energy sources, water management, hunting, fishing and aquiculture, parks, reserves, green spaces, and the protection of architectural monuments. That is five times as many as work in the iron and steel industry.

Their activity is the source of another 200,000 so-called indirect jobs. A detailed examination of the development possibilities for those sectors over the next 10 years indicates that the number of potential new jobs stands at 485,000. An active environmental policy pursued simultaneously by the government, local communities, and the private sector could create more than 48,000 new jobs between now and 1992.

In the final analysis, there is no really serious economic argument against a well-conceived environmental policy. Pollution and the deterioration of the setting of life are very expensive. Current expenditures to limit them are modest in comparison with the damage they do. The expenditures could no doubt be put to better use if the results of cost-benefit analysis were applied to them. Their slightly negative effects on productivity and prices are offset--and more than offset--by technological innovation, export possibilities, and the creation of jobs.

On the other hand, the absence of a policy on the natural setting of life would be paid for with such a deterioration of surroundings and resources that in the long run, the very foundations of future development would be jeopardized. And to undo those offenses, it would be necessary to spend 10 times as much as the French currently spend to prevent them. Ecology and economics therefore have every reason to make up with each other.

11798

CSO: 5000/2077

SWEDEN

DEBATE CONTINUES OVER LAW OF FOREST PESTICIDE SPRAYING

Stockholm DAGENS NYHETER in Swedish 17 Mar 82 p 8

[Article by Thomas Michelsen: "Forestry Chairman Says New Law Will Not Stop Spraying of Forests"]

[Text] The new bill on spraying in the forest is a prohibition which in reality grants permission, said the chairman of the Forest Workers Union, Sixten Backstrom, at the political debate of Forestry Week on Tuesday.

Backstrom said that according to the wording of the bill as it applied to the economy, it would be permissible to spray anywhere.

The proposal for a new law on spraying will be based on a compromise which has been arranged between the center, the liberals and the conservatives.

Spraying the forest was--as usual--a main question when forestry policy was discussed. Director Erik Sundblad of Stora Kopparberg received the day's longest applause when he attacked the management of spraying.

"The prohibition of spraying in the forest has arrived because of political cowardice," said Sundblad.

"The management of this question is the most deplorable that I have seen. The prohibition against spraying works against the political goal of utilizing the raw materials of the forest," said Sundblad.

"We must increase to cutting between 70 and 75 million cubic meters per year before the capacity of the industry is fully utilized."

Minister of Industry Nils G. Asling rejected the industry's request to spray at will. He considered that cutting must increase to over 70 million cubic meters per year. Today it is barely 60 million.

"The program which the government has put forth is going to have a significant effect," said Asling. He mentioned the program for the thin forests,

stimulation for forest road building and ditching, and that tax reform is also beneficial to forestry.

"But we do not believe that minimum cutting can be prescribed, as the social democrats recommend. That leads to bureaucracy. We do not wish to resort to compulsion until we see what can be accomplished with stimulation," said Asling.

Riksdag member Svante Lundkvist (social democrat) criticized the government for not following the Timber Supply Committee's recommendation for compulsory regulations for getting more timber from the forests.

"There are forest owners who are not interested in taking raw materials out of their forests. Asling is saying to them that if you will just calm down we will stimulate you some more," said Lundkvist.

"We want a system which will encourage the active forest owner, but which will be expensive for the passive."

Director Erik Sundblad considered that the measures recommended previously for getting more raw materials out of the forests were not sufficient.

"I agree that the policy should be made more severe in accordance with the social democratic recommendation," said Sundblad.

Sixten Backstrom agreed with the goal of the Long Range Analysis to expand the economy through exports, with the forestry industry as an important element.

"In recent years only 57 and 58 cubic meters have been cut. An increase of 15 percent, or 10 million cubic meters is necessary before reaching the goal. The forests are there, and in January 9.5 percent of the forestry workers were unemployed."

9287

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SWEDEN

CONCERN OVER ARSENIC-IMPREGNATED TELEPHONE POLES, SANDBOXES

Stockholm DAGENS NYHETER in Swedish 20 Mar 82 p 7

[Article by Ingvar Andersson: "Arsenic Can Even Be Found in Playground Equipment"]

[Text] The Bureau of Product Control of the National Swedish Environment Protection Board is not going to take any immediate steps to stop the use of arsenic-based wood impregnating substances. "We do not have sufficient evidence for such a decision," said the chief of the Control Measures Division of the Bureau of Product Control, Bo Wahlstrom.

"Investigations are going on about what damage arsenic impregnation can cause," said Wahlstrom. "We must await the results of these investigations before anything can happen."

The Telecommunication Administration has decided (as reported by DAGENS NYHETER yesterday) to replace three million telephone poles which are impregnated with arsenic substances, because the poles leak arsenic out into the surroundings. Furthermore, the agency will change over to arsenic-free impregnation.

If the Telecommunication Administration is now stopping the use of arsenic, is that not a reason to stop all arsenic-based impregnation?

"That does not follow," said first secretary Lena Rosen at the Environment Protection Board's Bureau of Product Control. Lena Rosen deals with questions which have to do with dangers from impregnation.

"The decision of the Telecommunication Administration is based in the first place on the fact that the impregnation effect is reduced when the arsenic leaks out of the poles."

But the Bureau of Product Control emphasizes that the leakage of arsenic from wood products is a problem.

"The greatest risk is that arsenic leaks out into the ground water and contaminates it," said Bo Wahlstrom at the Bureau of Product Control.

"We have no examples of such contamination. At the same time we must recognize that the problem is so new that we do not know about all the results."

Even Playground Equipment

Arsenic has been used for impregnation of wood products for a long time throughout the world. Practically all the pressure impregnation is done with arsenic-based substances. This happens to a large number of wood products--telephone poles, bridges, playground equipment, garden furniture, railroad crossties, fences, etc. Arsenic-based pressure impregnation is most easily recognized by the light gray-green color of the wood.

Arsenic is a chemical element and is poisonous even in small doses. The reason why it is still used as an impregnating substance, in spite of its dangerous nature, is because it has been known for a long time that it combines with wood with great stability. What is now happening is that the increasing acidity in the earth, ground water and rainfall is washing the arsenic out of the wood. The acidity also prevents the arsenic from adhering to the earth, which would normally happen, so it moves on out into various watercourses--and into the ground water.

Small Risk

Because arsenic is an element, it is not destroyed, but is continuously enriched.

Neither Lena Rosen nor Bo Wahlstrom believe that the public should be concerned about illness from arsenic impregnated wooden objects in their gardens, for example.

"The amounts which occur in playground equipment and garden furniture are so small that they do not carry any risk," said Bo Wahlstrom. Only if the impregnated substance crystalizes on the outside of the wood should one be concerned."

"There are other substances, and I have no arsenic impregnated wood objects," said Lena Rosen. "But I would not go so far as to advise people not to buy arsenic impregnated furniture."

9287

CSO: 5000/2081

SWEDEN

ARSENIC DANGER QUESTIONED BY IMPREGNATING'S INVENTOR

Stockholm DAGENS NYHETER in Swedish 20 Mar 82 p 7

[Article by Owe Nilsson: "Inventor of Impregnating Substance Does Not Believe There Is Danger"]

[Text] "I do not believe it," said Bror Hager, technician and inventor, speaking of yesterday's information in DAGENS NYHETER that the Telecommunications Administration's telephone poles are leaking arsenic. Bror Hager invented the impregnating substance which is used on the telephone poles.

According to the Environment Protection Board all arsenic impregnating substances release arsenic because of leaking, when acidity increases in the natural surroundings.

Bror Hager claims that the question of leakage is exaggerated and that arsenic can only leak at the time of manufacture or use of the impregnating substance. Not directly from the telephone poles in nature. He also does not believe that the substance is so dangerous that it must be prohibited.

Received Stipend

"If we did that, we would be the only country in the world doing so. It is obvious that the substance is dangerous if it is ingested. But we should not do away with a substance that does not have a certain poisonous effect," said Bror Hager.

Just a few weeks ago Bror Hager received the STU--Technical Development Board--inventor's stipend of 25,000 kronor. At STU they said that they did not know about this problem until Bror Hager was chosen for the stipend.

"If we had known about it, naturally we would have taken it into account," said Superintendent Peter Jorgensson at STU.

"But I still believe that the positive effects--in this case where the life of the wood is doubled--would have outweighed," said Peter Jorgensson.

BORON MINERAL PROCESSING POSES ENVIRONMENTAL HAZARD

Istanbul DUNYA in Turkish 4 Jan 82 p 7

[Text] The mining and consumption of borate minerals have grown rapidly since World War II, consumption today standing at 3 million tons.

Turkey heads the list of world borate reserves and in the past 5 years we have exported more than 500,000 tons annually. 1982 exports are expected to be 1 million tons. The current price of borate minerals is over \$300 a ton.

As in other branches of industry and mining, waste and environmental pollution figure in the boron minerals industry also.

This article looks at the processing of Turkish boron minerals from the standpoint of wastes and environmental pollution, based on a study conducted by Mining Research Institute employee Salih Gok which appeared in the latest issue of "Yeryuvari ve Insan [Earth and Man]," the magazine published by the Turkish Geological Organization.

These wastes are divided into ore preparation wastes, mining wastes and industrial wastes, as the characteristics, environment and effects of each are different.

Turkey produces borax at Kirka, Emet, Bigadic and Mustafa Kemal Pasa.

Kirka Borax Works

The Kirka borax deposits spread over an area of approximately 7 km². The bed of ore varies between 4 and 156 meters in thickness and the thickness of the rock cover varies between 16-97 meters.

The inner portion of the deposits consists of borax, tapering off towards the edges to borax-ulexite and ulexite-colemanite. Accessory minerals such as meyerhofferite, inderite and tunelite also appear in addition to these major minerals.

As indicated by its name, the Kirka Borax Works were established for the purpose of processing borax, and the mine now in operation was opened in the zone where borax is plentiful, thus the deposit is still running strong. It is suggested that it be organized so as to process the ulexite and colemanite in the future.

Mining Wastes

In the production of borax from the current open pit mine, 10 million m³ of overburden were removed to get to the ore. An additional 5 million m³ of rock crust over the ore must also be removed. As long as production continues, this excavation of overburden will continue also, and the pit from which the ore is taken is not expected to last much longer as a repository for the wastes.

Moreover, the need for better planning of the use of this pit is indicated. The reasons given are these:

The excavated materials consist of limestone, dolomitic limestone, clay tuffite and diatomaceous earth (prevalent in Turkey).

No ground water is yet involved at these sites, but when ore starts coming from below the level of the water table, it is thought that it will present problems both as to operations and environmental pollution.

The Catoren irrigation dams are to be built on Akin, Kunduzlar and Kumbet Streams, making it necessary that boron-contaminated waters not enter those streams.

Borax Concentrator Wastes

At present, 320,000 tons of unprocessed borax are being produced annually at the Kirka Borax Works. This ore is concentrated to produce 196,000 tons of borax concentrate annually. The remaining 124,000 tons of waste accumulate at the dam. This is a three-level dam which washes the effluent from the concentrator through the first and second levels, returning the clean water passing through the third level to the concentrator.

Since the effluent accumulating at the waste dam is 40 percent-50 percent water, it means a waste accumulation of approximately 200,000 tons annually.

The concentrator is being enlarged to double its capacity, effluent accumulated at the waste dam is expected to be 400,000 tons a year. The existing waste dam will soon be full, making it necessary to find places for new dams.

Samples are being taken from the water and mud at the waste dam for analysis.

Emet Colemanite Works

There are large deposits of colemanite at Hisarcik and Espey where thickness of the ore stratum varies between 4 meters and 30 meters. The major mineral is colemanite. Accessory minerals are borates such as ulexite, inyoite, meyerhofferite, boroarsenates such as terugite and cahnite and arsenic sulfides such as realgar and orpiment.

The overburden consists of limestone, dolomitic limestone, clay tuffite, dolomite and diatomaceous earth (prevalent in Turkey) and its thickness varies between 30 meters and 100 meters.

Open pit mines are used at Hisarcik and covered mines at Espey.

Mining Wastes

The Hisarcik mines are open pit mines where the maximum cover thickness at present is 60 meters. The colemanite deposit is approximately 30 meters thick. The upper stratum which is approximately 20 meters thick is described as top-grade ore and this is the stratum being mined. The second-grade stratum below is about 10 meters thick, having 18 percent B_2O_3 purity. This part is coarse crystal. Since it shatters into tiny particles during mining and in the concentrator and cannot be raised to B_2O_3 marketable purity, it is left in the ground. Reserves of the second quality ore so far uncovered are around 10 million tons.

Material dumped to date as refuse and fill from the Hisarcik mines amounts to 20 million m^3 .

In addition to material at the dump site, 10 million tons of colemanite are left in the ground at present. Leaving this ore in the ground is gradually lengthening the distance between the strip and the dump, raising the total amount of excavation. Moreover, it prevents utilization of the part from which ore has been removed as a dump site.

Ways are being sought to enrich and utilize the second-grade ore.

There is no ground water as yet at the Hisarcik and Espey mines, thus no problems as to either the mining operation or environmental pollution.

Colemanite Washing Facility Waste

The present capacity of the washing facility at Hisarcik is 450,000 tons of unprocessed ore, working in three shifts.

The ore is separated as follows coming out of the washer:

Solid matter going to the waste dam: 40 percent
Lump ore (25-125 mm in size): 32 percent
Medium grain ore (3-25 mm): 13 percent
Fine grain ore (0-3 mm): 15 percent.

Forty-three percent of the lump ore and 41 percent of the medium grain ore are of B_2O_3 purity and this is marketable.

The fine grain ore is 35 percent B_2O_3 purity and is not utilized. Approximately 70,000 tons of this unusable ore goes to waste each year.

There are 180,000 tons a year of the solid matter going to the waste dam. Considering that it absorbs about 50 percent of its weight in water, there are 270,000 tons of effluent accumulating at the waste dam each year.

The fine colemanite particles and some of the boroarsenates and arsenic [sulfides] such as realgar and orpiment which co-occur with the ore go to the waste dam along with the effluent.

Even if the chemical composition of the rock in which borates are found varies to some degree, the mineralogical composition does not, and consists of magnesium-bearing montmorillonite, calcite and dolomite.

No B_2O_3 content research has been conducted on the mud and water accumulating at the waste dam in the operations described here and following.

Mustafa Kemalpaşa, Kestelek Operations

The primary mineral at this site is colemanite and accessory minerals are borates such as ulexite and havlita and, in lesser quantities, arsenics such as realgar and orpiment.

Open pit mining is also used here. Millions of cubic meters of refuse have been removed from the open pit. There is ground water at the mine and this goes to the waste dam along with the wash wastes.

The Kestelek works are on the Koca River and the Emet works on the banks of the Emet River. These two streams meet near Devecikonagi and become the Mustafa Kemalpaşa River. This river empties into Lake Ulubat.

The Mustafa Kemalpaşa and Karacabey Plains are irrigated by Lake Ulubat. The affected areas comprise more than 40,000 hectares.

Analyses conducted of the water of Lake Ulubat revealed a boron content varying between 1-2 ppm, rising as high as 4 ppm in 1978.

Suspended wastes found in the water are harmful to lake organisms and irrigation water. The suspended wastes come from the lignite washer in Tuncbilek.

Bigadic Colemanite Works

Borate deposits occur at two levels. A layer of precipitate rock around 150 meters thick occurs between the two borate layers.

The borate deposits cover an area of approximately 50 km².

The upper borate layer varies in thickness from 1-8 meters and consists of a colemanite-ulexite strip. Accessory minerals include pandermite, inyoite and gypsum.

Thickness of the ore layer in the lower borate deposit varies between 4-30 meters. The deposit consists of colemanite and the accessory minerals, ulexite, pandermite and inyoite.

None of the boroarsenates or arsenic sulfides such as realgar and orpiment have been seen in these deposits.

Refuse and Fill

A total of more than 20 million m³ of refuse and fill material have been removed from the two open pit mines. The fill removed from the covered mines is also in the millions of cubic meters. New open mining projects are under preparation to increase production.

A quantity of ulexite is also dumped along with the fill in the ulexite-containing areas.

Since ulexite is not in as much demand as colemanite, stocks remain on hand.

Ground Water

Production at the two open and three covered mines takes place from below the water table.

A total of 170 liters/second of water is pumped from these mines. The water removed from these mines is stored in ponds for agricultural use in the dry season and is left in the stream in the rainy season when agricultural irrigation is not needed.

In 14 tests made in 1978 at the Bigadic Bridge over the Simav River, boron content was found to vary between 0.04-0.34 ppm in inverse proportion to the flow of the river.

This is the first test station before the stream enters the borate deposits area.

The first station after the stream exits the borate deposits area is the Alapete regulator. Tests made at this station show boron content to be .06 ppm in February (1975), 5.3 ppm in April-May (1978) and 5.5 ppm in October-November (1978).

Most water is pumped from the mines at the times when it is left in the stream. The boron content is in inverse proportion to the flow of the stream.

The Balikesir, Kepsut and Susurluk Plains and part of the Karacabey Plain are irrigated by the waters of the Simav River.

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